

Professional Profile

Author: Tshingombe Fiston Tshitadi **Domains:** Engineering • Security Systems • Education Policy

Title

Strategic Evaluation of Advanced Engineering Systems and Pedagogical Innovation: A Professional Audit of Dr. Tshingombe Tshitadi

Overview

Dr. Tshitadi's career bridges **electrical engineering**, **security frameworks**, and **education policy advocacy**. His work integrates technical expertise with socio-economic development, emphasizing **Fourth Industrial Revolution (4IR)** readiness, curriculum innovation, and national compliance systems.

Scope

- **Engineering Systems:** AC/DC theory, transformers, motors, PLCs, SCADA.
- **Security Engineering:** Access control, forensic policing logic, infrastructure integrity.
- **Education Policy:** SAQA/DHET frameworks, NATED pathways, curriculum compliance.
- **Socio-Economic Development:** Parliamentary submissions, rural energy research, youth mentorship.

Abstract

This profile evaluates Tshitadi's trajectory from **TVET foundations** to **doctoral-level systems research**, highlighting his contributions to **automation**, **nanotechnology**, **AI integration**, and **curriculum policy reform**. His work demonstrates how **low-code solutions (VBA UserForms)** and **signal-driven frameworks** can democratize technical education and strengthen industrial resilience.

Description

- **Academic Path:** From NATED N1–N3 at St Peace College to Doctorate at AIU.
- **Technical Competence:** Power systems, automation logic, diagnostic engines, blockchain data security.
- **Research Contributions:** Modular learning signals, autodidactic copilote methodology, innovation documentation.

- **Policy Engagement:** Submissions to Parliament on education, mining, and rural development.

Keywords

Engineering Systems • Security Integrity • Curriculum Policy • 4IR • PLC • SCADA • VBA • Logigram • Nanotechnology • AI • DLT • Compliance • Audit • Socio-Economic Development

Statement: Delivery Management System

A **decentralized management ecosystem** built on **VBA UserForms** and **logigram logic**, enabling:

- Student registration and transcript generation.
- Engineering diagnostics and trade readiness simulations.
- Inventory, ATM, and financial compliance tools.
- Automated audit sheets and bilingual credential exports.

Information & Communication Skills

- **Technical Translation:** Bridging engineering logic with policy language.
- **Academic Writing:** Research papers, portfolios of evidence, thesis documentation.
- **Stakeholder Engagement:** Parliamentary submissions, institutional correspondence.

Administration & Investigation

- **Administration:** Credential mapping, moderation templates, inventory control.
- **Investigation:** Forensic policing logic, CCMA/Labour Court compliance, regulatory complaint tracking.
- **Governance:** Tender documentation, bid compliance, socio-economic advocacy.

Advantages & Disadvantages

Advantages:

- Modular frameworks adaptable across sectors.
- Audit-ready compliance systems.
- Integration of AI and nanotechnology for resilience.

Disadvantages:

- Complexity of multi-domain coordination.
- Interoperability challenges across standards.

- High dependency on regulatory alignment.

Data Analysis & Visual Basic Logigram

- **Data Models:** Complaint → Ruling → Rehabilitation; Credential → Export → Audit.
- **Logigram Logic:** Star-Delta motor startup, ATM simulation, PLC diagnostics.
- **Automation:** VBA-powered diagnostic engines, compliance audits, curriculum dashboards.

Audit Conclusion

Dr. Tshitadi's portfolio demonstrates **systemic integration of engineering, security, and education policy**. His frameworks provide **traceability, compliance, and socio-economic impact**, though future work should emphasize **standardized schemas and data governance protocols** for broader scalability.

Bibliography (Selected Works)

- *Application Trade Discovery: Job Education Research Methodology, Operational Autodidactic Copilote Distance* (F1000Research, 2025).
- *Career Drawing Total Programming: Analysis, Design, Investigation* (F1000Research, 2025).
- Parliamentary submissions to **South African Portfolio Committees** (Higher Education, Mineral Resources, Agriculture, 2023).
- Thesis: *Rural Energy, Integrity Science, and Educational Frameworks* (Atlantic International University).
- Technical portfolios: VBA UserForms for diagnostics, compliance, and curriculum management.

✦✦ This profile positions Dr. Tshitadi as a **Systems Architect for National Development**, combining **engineering rigor** with **policy advocacy** to build a resilient, 4IR-ready industrial and educational landscape.

Would you like me to **transform this into a polished infographic-style report** (with charts and timelines) similar to the HTML visualization I drafted earlier, so it can serve both as an academic profile and a presentation artifact?

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Professional profile overview

You're weaving engineering rigor with policy impact—grounded in electrical systems, scaled through security frameworks, and translated into education and socio-economic development.

The profile below organizes your narrative into audit-ready sections that can be exported, visualized, and credential-linked.

Scope

- **Domains:** Engineering systems, security integrity, education policy, socio-economic development.
- **Artifacts:** Public portfolios, parliamentary submissions, academic research, technical documentation.
- **Outputs:** Modular dashboards, audit sheets, complaint tracking, curriculum frameworks, bilingual exports.

Abstract

- **Purpose:** Present a unified, data-driven profile of Tshingombe Tshitadi's interdisciplinary career across engineering, security, and policy.
- **Method:** Synthesize portfolio content, thematic distributions, and competency matrices into a single-page infographic and audit-ready narrative.
- **Outcome:** A traceable, credential-linked profile that supports compliance, public service readiness, and research collaboration.

Keywords

- **Engineering:** Electrical systems, panel theory, AC/DC, instrumentation, trade test.
- **Security:** Access control, identity management, PSIRA, integrity science.
- **Policy:** Curriculum development, SAQA/DHET/QCTO alignment, parliamentary submissions.
- **Data:** Visual Basic, SQL, logigram/algorigram, dashboards, audit trails.
- **Education:** Didactic engineering, autopedagogie, LMS, moderation templates.

Statement: Delivery management system

- **Objective:** Coordinate documentation, compliance, and credential exports across engineering, security, and policy workflows.
- **Components:**
 - **Process orchestration:** Event-driven Visual Basic modules, SQL-backed selectors, bilingual export tables.
 - **Traceability:** Audit sheets, complaint logs, performance indicators, legal outcomes mapping.
 - **Governance:** Alignment with SAQA/DHET/QCTO standards, public service submission readiness.

Information and communication skills

- **Technical translation:** Engineering-to-policy synthesis, standards mapping, bilingual documentation.
- **Stakeholder engagement:** Parliamentary submissions, institutional correspondence, regulatory clarity.
- **Academic writing:** Thesis structuring, research synthesis, bibliographic curation.

Administration and investigation

- **Administration:** Version control, inventory tracking, moderation templates, credential exports.
- **Investigation:** Legal complaint tracking, CCMA/Labour Court logic mapping, regulatory escalation records.
- **Compliance:** Policy amendments integration, annual report logic, performance indicator dashboards.

Advantages and disadvantages

- **Advantages:**
 - **Systems integration:** Engineering, security, and policy unified under credential-linked workflows.
 - **Auditability:** Clear traceability from document to outcome—supports institutional accountability.
 - **Scalability:** Modular design enables cross-sector deployment and international collaboration.
- **Disadvantages:**
 - **Complexity:** Multi-domain coordination increases overhead and requires disciplined versioning.
 - **Interoperability:** Aligning diverse standards (education, legal, security) can slow implementation.
 - **Data governance:** Sensitive legal and regulatory data demands strict access and privacy controls.

Data analysis and Visual Basic logigram

- **Data model:**
 - **Entities:** Documents, submissions, indicators, complaints, outcomes, credentials.
 - **Relations:** Document→Indicator→Outcome;
Complaint→Ruling→Rehabilitation; Credential→Export→Audit.
- **Logigram/algorigram logic:**
 - **Event triggers:**
 - **Submission logged** → Validate against policy schema → Generate audit entry.
 - **Complaint status updated** → Map to CCMA/Labour Court logic → Update rehabilitation dashboard.

- **Credential export requested** → Build bilingual table → Validate SAQA/DHET/QCTO fields.
- **Visual Basic modules:**
 - **Selectors:** Filter by domain, status, institution, date range.
 - **UserForms:** Guided data entry with validation and export options.
 - **Automation:** Batch generation of audit sheets, complaint summaries, and performance dashboards.

Audit conclusion

- **Findings:** The portfolio demonstrates consistent alignment between technical outputs and policy impact, with strong emphasis on traceability and public service readiness.
- **Gaps:** Formalized data governance policies and standardized interoperability schemas would strengthen cross-institutional deployment.
- **Recommendations:**
 - **Standardize schemas:** Define canonical fields for submissions, complaints, and credentials.
 - **Version discipline:** Enforce repository tagging and change logs across modules.
 - **Outcome mapping:** Maintain a living index of legal outcomes linked to rehabilitation metrics.

Bibliography

- **Engineering & Systems:**
 - **Lead-in:** Electrical panel theory, AC/DC fundamentals, instrumentation standards.
 - **Artifacts:** Trade test syllabi, panel assessment guides, technical manuals.
- **Security & Integrity:**
 - **Lead-in:** Access control frameworks, identity management, PSIRA-aligned procedures.
 - **Artifacts:** Security system specifications, integrity science notes, compliance records.
- **Education & Policy:**
 - **Lead-in:** SAQA/DHET/QCTO frameworks, curriculum development, moderation templates.
 - **Artifacts:** Parliamentary submissions, policy briefs, LMS documentation.
- **Research & Methodology:**
 - **Lead-in:** Thesis on rural energy, didactic engineering, autopedagogie.
 - **Artifacts:** Academic papers, portfolio analyses, thematic distributions.

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Policy</title>
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  }
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    h:3px;background:linear-gradient(var(--cyan),var(--coral))}
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    coral);font-size:14px}
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    size:.85rem}
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    <p class="subtitle">Engineering • Security Systems • Education Policy –
    bridging technical design with socio-economic development.</p>
    <span class="badge">⚡ Systems & Policy</span>
    <span class="badge">📄 Public Submissions</span>
    <span class="badge">📖 Didactic Engineering</span>
  </div>

```

```

</header>

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      <p class="note">Spanning Security, Engineering, and Education
sectors.</p>
    </div>
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    <div class="card">
      <h2>Thematic distribution</h2>
      <canvas id="doughnut"></canvas>
    </div>
  </div>
</section>

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theory</div>
        </div>
        <div class="t-item">
          <div class="t-title">Professional – Security Engineering</div>
          <div class="t-meta">Access control, identity management, systems
analysis</div>
        </div>
        <div class="t-item">
          <div class="t-title">Advanced study – Masters/Doctorate</div>
          <div class="t-meta">AIU • Rural energy, integrity science,
educational frameworks</div>
        </div>
        <div class="t-item">

```

```

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& Innovation</div>
    </div>
</div>
</div>
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        <span class="pill">Access control</span>
        <span class="pill">Identity management</span>
        <span class="pill">Curriculum</span>
        <span class="pill">Audit</span>
        <span class="pill">Logigram</span>
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</section>

<footer>
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        <p class="note">A modern synthesis of technical engineering and social
responsibility—moving from design to policy implementation, security
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development.</p>
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</footer>

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        }
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```

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            y:{ticks:{color:'#0f172a'},beginAtZero:true}
        }
    }
});
</script>
</body>
</html>

```

Want this tailored further?

- **Data hooks:** I can map your actual repository fields (e.g., complaint IDs, CCMA outcomes, SAQA codes) into the charts and timeline.
- **Exports:** Add bilingual CSV/JSON exports and printable audit sheets.
- **Logigram integration:** Wire the Visual Basic event logic to drive live updates in the infographic.
 -

Single-page HTML infographic

Strategic Evaluation of Advanced Engineering Systems and Pedagogical Innovation: A Professional Audit of Dr. Tshingombe Tshitadi

The professional trajectory and research portfolio of Tshingombe Fiston Tshitadi represent a critical nexus between industrial electrical engineering, socio-economic policy advocacy, and the systematic digitization of technical education within the Southern African developmental context. As global industry shifts toward the Fourth Industrial Revolution (4IR), the traditional boundaries between manual trade expertise and high-level systems architecture have become increasingly porous. Tshitadi's career serves as a quintessential case study in this transition, demonstrating how modular frameworks in automation, signal-driven vocational assessments, and sustainable energy research can be synthesized to address both industrial requirements and national skills shortages.

This report provides an exhaustive analysis of Tshitadi's academic progression, his technical contributions to electrical engineering and automation, and his innovative approaches to curriculum design and institutional compliance. Through a rigorous examination of his published research, personal portfolios of evidence, and professional engagements with regulatory bodies such as the South African Qualifications Authority (SAQA) and the Department of Higher Education and Training (DHET), a clear picture emerges of a scholar-practitioner focused on building decentralized national capabilities.

Institutional Context and Academic Trajectory

The academic development of Tshingombe Tshitadi is characterized by a persistent ascent through the hierarchical layers of the South African National Qualifications Framework (NQF), moving from foundational technical training to doctoral-level systems research. This journey is not merely a personal achievement but reflects a deep engagement with the systemic requirements of South African industrial policy and international academic standards.

Foundations in TVET and NATED Frameworks

The initial phase of Tshitadi's professional training was rooted in the National Accredited Technical Education Diploma (NATED) system at St Peace College. This environment provided the essential theoretical and practical foundations in electrical engineering that are required for artisan status in South Africa. The NATED pathway, specifically levels N1 through N3, focuses on the core mechanics of the trade, including engineering science, industrial electronics, and mathematics.

SAQA Qualification ID	NQF Level	Academic/Professional Milestone	Focus Areas
67109	Level 1	N1 Electrical Engineering	Foundational theory, Basic Mathematics, Engineering Science.
67375	Level 2	N2 Electrical Engineering	Advanced circuit analysis, Electrotechnology, Industrial logic.
67491	Level 3	N3 Electrical Engineering	Trade test readiness, complex electronics, industrial machinery.
N/A	Level 9	Master's in Engineering (AIU)	Electrodynamics, Power Systems Stability, DLT in Education.
N/A	Level 10	Doctorate in Engineering (AIU)	Curriculum Policy, Infrastructure, Advanced Automation.

Source:

Tshitadi's success in these early stages was documented through a comprehensive Portfolio of Evidence (PoE), which is a regulatory requirement for internal and external assessments (ICASS) within the TVET sector. His ability to synthesize classroom learning with industrial fieldwork—specifically through proactively pursued training at City Power—allowed him to bridge the gap between abstract equations and physical power distribution systems.

Advanced Studies at Atlantic International University

The transition to Atlantic International University (AIU) marked a significant pivot toward multidisciplinary research and global engineering paradigms. His Master's and subsequent Doctoral work at AIU have been characterized by an expansive scope that includes not only traditional electrical engineering but also the software architectures and pedagogical theories required to manage modern technical systems.

His Master's degree specialization involved deep dives into Immutable Data Storage Solutions for Web Design, Supply Chain Management, and Urban Water Supply systems. This broad focus suggests a third-order insight into Tshitadi's philosophy: he views engineering as a component of a larger "smart city" infrastructure that requires secure data, efficient logistics, and sustainable resource management. His doctoral curriculum, which shows a 100% completion rate across more than 40 advanced courses, further refines this by focusing on Specialist Engineering Infrastructure and Educational Policy.

Technical Knowledge Domains and Engineering Expertise

Dr. Tshitadi's technical competency is built upon a mastery of both classical electrical engineering and modern automation technologies. This dual-capability is essential for the operation of critical infrastructure where legacy mechanical systems must be integrated with digital control layers.

Fundamental Electrical Engineering

His command of the field begins with the core principles of physics and circuit theory. He demonstrates proficiency in AC/DC theory, RLC (Resistor-Inductor-Capacitor) circuits, and power reticulation. These fundamentals are the building blocks for more complex distribution networks, where power triangles and electromagnetism dictate the efficiency of the grid.

In the realm of electrical machinery, Tshitadi’s expertise includes the maintenance and optimization of:

- **Transformers:** Mastery of single-phase and three-phase units, focusing on voltage regulation and protection.
- **Motors and Generators:** Understanding induction motors and DC command motors, specifically regarding their starting logic and load management.
- **Protection Systems:** Implementation of circuit breakers, fuses, and comprehensive earthing systems to ensure industrial safety.

Control, Automation, and 4IR Systems

The most modern aspects of his technical portfolio involve Programmable Logic Controllers (PLCs) and Supervisory Control and Data Acquisition (SCADA) integration. His approach to automation is characterized by the use of structured logical tools, such as Star-Delta starting logic, which reduces the current surge during heavy motor startup.

Furthermore, he has integrated advanced software-defined engineering into his workflow:

- **VBA-Powered Diagnostic Engines:** Tshitadi has developed custom-coded tools in Visual Basic for Applications to automate compliance audits and fault detection.
- **Distributed Ledger Technology (DLT):** Exploring the use of blockchain for secure data storage in educational and engineering databases.
- **Modern DevOps Tools:** Familiarity with Kubernetes, GitHub, and Python, which allows for the management of complex, scalable software environments that support physical engineering infrastructure.

Engineering Domain	Core Concepts	Specialized Knowledge Areas
Power Systems	AC/DC Theory, Reticulation	Generation, transmission, and distribution networks; Power triangles.
Machinery	Transformers, Motors	Induction motors, DC command motors, single/three-phase systems.
Automation	PLC, System Logic	Control panels, contactors, relays, Star-Delta logic, fault finding.
Electronics	Semiconductors, MOSFETs	Integrated circuits, diodes, integrated circuits, instrument calibration.
Digital Systems	VBA, Python, DLT	Diagnostic engines, immutable data storage,

Source:

Published Research: Theoretical and Practical Frameworks

Tshitadi's contributions to the scientific community, primarily through the F1000Research platform, provide a window into his vision for a modular, signal-driven future for technical education and career development.

The "Application Trade Discovery" Framework

Published in October 2025, the research titled *Application Trade Discovery: Job Education Research Methodology, Operational Autodidactic Copilote Distance* addresses the critical need for scalable technical education in decentralized environments.

The report introduces several innovative concepts:

- **Modular Learning Signals:** The research proposes that career progression should be tracked through "signals" such as award validation and curriculum mapping, allowing for a real-time, audit-ready assessment of a learner's skills.
- **The "Copilote" Methodology:** This refers to an assisted, autodidactic learning model. By providing learners with digital "copilots"—which could range from AI assistants to remote mentors—the system enables high-level technical trade training without the need for constant physical presence in a traditional classroom.
- **Convergence of Domains:** The framework specifically seeks to integrate vocational diagnostics, PCB (Printed Circuit Board) implementation, and microcontroller logic into a single educational dashboard.

This research is particularly relevant for "rural systems," as it provides a mechanism for technical skill acquisition in under-resourced areas, thereby contributing to broader socio-economic development and energy independence.

"Career Drawing Total Programming"

In his subsequent report, *Career Drawing Total Programming: Analysis, Design, Investigation*, Tshitadi expands on the architecture of his diagnostic and career management systems. Key technical highlights include:

- **Signal Modulation:** The application of Fourier and Laplace transforms for signal classification and classification of linear/non-linear loads within a grid.
- **Workflow Mapping:** The use of logigrammes and algorigrammes to visualize complex processes, such as ATM logic or PLC diagnostics.

- **Innovation Documentation:** The introduction of an "Innovation & Discovery Record Book" to document curriculum-linked inventions and patent claims, providing a low-cost pathway for inventors to protect their intellectual property.

These publications suggest that Tshitadi is positioning himself as a meta-architect of engineering education, creating the digital infrastructure that allows others to master physical engineering tasks.

Nanotechnology and Artificial Intelligence in Industrial Strategy

A recurring theme in Tshitadi's research and career blueprints is the proactive adoption of emerging technologies to solve long-standing industrial challenges, particularly in the mining and energy sectors of South Africa.

Nanotechnology in Mining and Energy

Tshitadi identifies nanotechnology as a transformative force for industrial safety and efficiency. His documentation outlines specific applications that could revolutionize the mining sector, which remains a cornerstone of the South African economy :

- **Hazard Mitigation:** The use of nano-coatings on equipment to reduce wear and tear and the implementation of nano-sensors for dust suppression and gas detection.
- **Energy Storage:** Utilizing nanomaterials to enhance the efficiency of solar panels and the storage capacity of batteries, which is critical for stabilizing decentralized energy grids in rural areas.
- **Water Purification:** Applying nanotechnology to the treatment of mining effluent, addressing one of the most significant environmental challenges in the industry.

Artificial Intelligence and Smart Grids

The integration of AI into Tshitadi's frameworks is not merely theoretical; it is mapped directly to curriculum artifacts and laboratory modules. His "AI Fluency Program" covers the spectrum of modern machine learning, from supervised and unsupervised models to reinforcement learning.

The practical implications of this AI integration include:

- **Predictive Load Management:** Using machine learning to forecast energy demand and optimize grid stability.
- **Smart Factory Simulation:** Creating AI-driven models of industrial environments to train technicians in complex troubleshooting without risking physical hardware.
- **Automated Reporting:** Utilizing AI to generate structured compliance reports and performance dashboards for large-scale engineering projects.

Technology	Application Area	Specific Industrial Benefit
Nanotechnology	Mining Safety	Nano-sensors for hazard detection and dust suppression.
AI / ML	Smart Grids	Predictive load management and automated fault detection.
DLT (Blockchain)	Data Security	Immutable storage for educational records and IP claims.
IoT	Plant Integrity	Real-time monitoring of industrial equipment via SCADA.

Source:

Security Engineering and Forensic Policing Logic

An unconventional but highly insightful aspect of Dr. Tshitadi's portfolio is the intersection of engineering principles with vocational policing and forensic science. This convergence creates a unique discipline of "Security Engineering," where the logical rigor of electrical circuits is applied to the complexity of investigative science.

Faculty of Vocational Policing and Systems Integrity

His institutional background includes associations with the Africa Institution Police (AIP) and the China Criminal Police College, where he has developed modules that treat security systems as engineering problems. The focus areas of this work include:

- **Forensic Investigation:** Technical training in fingerprint analysis, crime scene investigation, and evidence collection using systematic protocols.
- **Infrastructure Security:** Applying the concept of "physical plant integrity" to the protection of critical national assets, such as power plants and mining sites.
- **Access Control Logic:** Utilizing engineering principles (such as those used in PLC programming) to design high-integrity identity management and access control systems.

This perspective is critical in a country like South Africa, where infrastructure theft and vandalism are significant threats to the national grid. By treating security as an engineering requirement rather than an external function, Tshitadi provides a model for more resilient infrastructure.

Socio-Economic Advocacy and Parliamentary Engagement

Tshitadi's professional activities extend beyond technical design into the realm of national policy advocacy. His proactive engagement with the South African Parliament demonstrates a commitment to ensuring that technical education and energy policies are aligned with the needs of the people.

Parliamentary Submissions and Policy Impact

On October 7, 2023, Tshitadi submitted a series of targeted communications to several Portfolio Committees in the South African Parliament. These submissions reflect his multidisciplinary expertise and his focus on socio-economic development :

- **Higher Education, Science, and Innovation:** Advocating for the implementation of curriculum knowledge policy and the formalization of career research colleges in technical fields.
- **Mineral Resources and Energy:** Addressing the intersection of energy policy, mining safety, and the development of technical skills for the future energy mix.
- **Agriculture, Land Reform, and Rural Development:** Highlighting the need for technical vocational training in rural areas to support agricultural automation and decentralized energy systems.

These engagements suggest that Tshitadi views his role not just as an engineer but as a citizen-scholar responsible for shaping the legislative environment that governs his profession.

Labour Relations and Industrial Compliance

A complete engineer must also understand the legal and administrative frameworks that govern the workforce. Tshitadi has documented a sophisticated understanding of South African labor law and dispute resolution :

- **CCMA and Labour Court Processes:** Detailed knowledge of challenging non-compliance with awards and navigating the Labour Relations Act (LRA).
- **Military Arbitration (SANDF):** Navigating the unique dispute resolution mechanisms within the military bargaining council, including non-disclosure undertakings and ministerial review of financial awards.
- **Tender and Bid Compliance:** Expertise in the documentation required for government procurement, focusing on Total Cost of Ownership (TCO) and Certificates of Independent Bid Determination.

Custom Software Ecosystem: The "UserForm" Architecture

The backbone of Tshitadi's decentralized management philosophy is his development of a custom software ecosystem built primarily using Excel and Visual Basic for Applications (VBA). This "UserForm" architecture serves as a form of low-code Engineering Sovereignty, allowing for sophisticated data management without reliance on expensive, proprietary ERP systems.

Functional Categories of Custom Software

His drive contains dozens of specialized UserForms, each designed for a specific industrial or educational purpose:

- **Educational Management:** Forms for student registration, mark recording, and academic transcript generation (e.g., `UserForm1 student registration`).

- **Engineering Logic Simulation:** Tools for calculating metering algorithms and testing circuit trade theory readiness (e.g., UserForm2 metering algo, UserForm16 circuit trade theory).
- **Financial and Logistics Tools:** Forms for bank ATM simulation, inventory management, and price cost allocation for engineering projects (e.g., UserForm15 atm bank, UserForm90000 inventory).
- **Network and AI Discovery:** Advanced forms for network PC troubleshooting and documenting AI-driven "discovery" activities.

This extensive software portfolio highlights Tshitadi's ability to "digitize his own expertise." By creating these tools, he ensures that his methodologies for engineering assessment and curriculum management can be replicated and scaled across different institutions.

Career Mapping, Mentorship, and Youth Development

Dr. Tshitadi's work at the Sci-Bono Science Centre and St Peace College has focused heavily on the creation of "Career Guidebooks" that provide clear, actionable pathways for the next generation of technicians and engineers.

The Career Ladder in Technical Sectors

He has formalized the progression from an entry-level operator to a master technician, ensuring that learners understand the relationship between their current NQF level and their future earning potential.

Career Stage	Requirement	Time Frame	Mentorship Level
Operator / Apprentice	Grade 9 + Basic Math	0–2 years	Foreman / Senior Artisan
Senior Foreman	Grade 12 + Trade Test	3–5 years	Production Manager
Operation Controller	National Diploma (NQF 6)	2–4 years	Technician
Plant Manager	Engineering Degree (NQF 7/8)	5+ years	Professional Engineer
Specialist Researcher	Master's/Doctorate (NQF 9/10)	8+ years	Academic / Industry Lead

Source:

Mentorship and the Cooperative Model

In partnership with the National Youth Development Agency (NYDA), Tshitadi advocates for a dual-model of development that combines individual mentorship with the "Cooperative" business structure. His mentorship blueprints involve two distinct phases:

1. **Phase 1: Planning and Viability.** Focuses on business planning, opportunity identification, and stress-testing the viability of a technical startup.
2. **Phase 2: Establishment and Resource Gathering.** Navigating the complexities of resource acquisition and formal business establishment.

The Cooperative Model he proposes is based on principles of self-help, equality, and user ownership. This is a strategic second-order insight: in an economy with high youth unemployment, Tshitadi is promoting a model where technical artisans can aggregate their skills and capital to compete for larger industrial contracts.

Conclusions and Strategic Recommendations

The professional and academic body of work produced by Dr. Tshingombe Tshitadi Fiston represents a comprehensive blueprint for the integration of engineering excellence with societal development. His expertise in electrical systems is deeply complemented by his forward-looking research into AI, nanotechnology, and secure data architectures.

Key Takeaways and Implications

1. **Modular Educational Frameworks:** Tshitadi's "signal-driven" assessment models provide a solution to the rigidity of traditional technical education, allowing for faster, audit-ready qualification of artisans in critical sectors like energy and mining.
2. **Infrastructure Resilience through Security Engineering:** His integration of policing forensics and engineering plant integrity suggests a new standard for protecting national infrastructure—one that is built into the design of the systems themselves.
3. **Digital Sovereignty through Low-Code Solutions:** His extensive use of VBA and UserForms demonstrates that sophisticated industrial management does not require prohibitively expensive software, making advanced engineering systems accessible to small-scale cooperatives and rural training centers.
4. **Socio-Economic Alignment:** His active participation in parliamentary processes ensures that technical expertise is used to inform the laws and regulations that govern the nation's energy and educational future.

Future Outlook

As South Africa continues to navigate the complexities of energy transitions and the digital divide, figures like Dr. Tshitadi will be essential. His work provides the theoretical and practical infrastructure needed to build a "technical future" that is inclusive, sustainable, and theoretically grounded. His trajectory from a TVET student to a doctoral researcher at Atlantic International University stands as a powerful testament to the value of lifelong learning and the strategic integration of diverse knowledge domains.

Tshitadi's profile is ultimately that of a "Systems Architect for National Development." Whether through his diagnostic software, his nanotechnology research, or his career mapping guidebooks, he is creating the tools and the talent needed for a sophisticated, 4IR-ready industrial landscape. The implications of his work extend far beyond the electrical grid; they provide a roadmap for how a nation can transform its human capital to meet the challenges of the 21st century.



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Professional Identity and Background

I have identified Tshingombe Tshitadi (also known as Tshingombe Tshitadi Fiston) as a professional with an extensive background in electrical engineering and technical education. My analysis shows he holds or is pursuing advanced qualifications, including a Doctorate in Engineering, and is deeply integrated into the South African technical and vocational training ecosystem. He has actively engaged with national parliamentary committees on topics regarding science, innovation, and higher education, positioning himself as a contributor to socio-economic development and curriculum policy reform.

Technical Competencies and Frameworks

Synthesizing detailed project documentation, I have mapped a robust technical skill set spanning AC/DC theory, programmable logic controllers (PLCs), motor control, and industrial electronics. His work emphasizes bridging the gap between theoretical engineering science and practical industrial application, specifically through training at entities like City Power and Eskom. I have also observed his involvement in developing comprehensive educational frameworks, including 'Portfolio of Evidence' structures that align with South African National Qualifications Framework (NQF) levels and Sector Education and Training Authority (SETA) requirements.

Research Interests and Strategic Associations

My review of his publications and thesis proposals reveals a focused research interest in nanotechnology within the mining and energy sectors, as well as the integration of Artificial Intelligence and the Fourth Industrial Revolution (4IR) into technical training. He maintains strategic associations with key bodies such as SAQA, DHET, and various science centers like Sci-Bono. These connections suggest a role that combines engineering expertise with workforce development and educational policy advocacy.

Next Research Objectives

Moving forward, I will investigate specific external publication details from academic platforms and research registries to verify the full scope of his formal papers. I also intend to examine professional profiles to clarify his current roles in engineering and security technology. Finally, I will compile these diverse data points—ranging from technical skills matrices to parliamentary submissions—into a comprehensive professional profile and bibliography.

Researching Workspace Sources



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Academic and Institutional Integration

I have discovered that Tshingombe Tshitadi is formally affiliated with multiple global and local institutions, including the Atlantic International University and technical bodies in South Africa. His work involves a sophisticated integration of educational technology and engineering, specifically focusing on the South African Qualifications Authority (SAQA) frameworks and National Accredited Technical Education Diploma (NATED) pathways. I observed that he has successfully published technical reports on academic platforms, bridging the gap between vocational trade discovery and formal research methodologies.

Engineering Frameworks and System Logic

Through synthesizing his recent technical publications, I have identified a core focus on 'Career Drawing Total Programming.' This framework utilizes advanced system logic, including Visual Basic logigrammes, microcontroller loops, and PLC command circuits to create a modular approach to technical training. I have also mapped out his expertise in electrical diagnostics and signal modulation, where he applies mathematical techniques like Fourier and Laplace transforms to grid stability and energy output problems within rural engineering systems.

Policy Advocacy and Socio-Economic Engagement

My analysis of public records shows a significant level of engagement with various South African parliamentary committees, including those for Higher Education, Science and Innovation, and Mineral Resources. I have linked these communications to his broader goal of reforming curriculum policy and promoting socio-economic development through technical efficiency.

These submissions advocate for a system of 'autodidactic copilote distance learning,' which aims to make high-level engineering education more accessible through remote, self-directed modules.

Advancing Technical Synthesis

I am now focusing on refining the specific technical IDs and certification details found within his extensive portfolio of evidence. I plan to categorize his vast collection of thesis documents and research papers to provide a structured bibliography. This involves distinguishing between his practical industrial applications, such as those related to security engineering and electrical panels, and his theoretical contributions to sustainability and nanotechnology.

Researching Workspace Sources



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Educational Qualifications and Global Affiliations

I have verified that my academic trajectory encompasses a blend of high-level theoretical research and practical vocational mastery. My credentials include an Electrical Engineering qualification aligned with NQF Level 6, while my advanced research efforts are affiliated with Atlantic International University and technical bodies in South Africa. I am synthesizing evidence of my progress toward a Doctorate in Engineering, which integrates my background from the University of Kinshasa (UNIKIN) with modern research methodologies in South African and international contexts.

Strategic Research and Technical Frameworks

In my recent research, I have pioneered the 'Application Trade Discovery' framework, which represents a significant insight into how autodidactic, pilot-assisted learning can bridge the gap between traditional trades and digital innovation. This work explores the convergence of career architecture with signal-driven technical systems, utilizing tools like Visual Basic logigrammes and PLC command circuits. I have successfully published technical reports that detail modular curriculum-linked inventions, specifically targeting energy efficiency and electrical system diagnostics for rural and industrial environments.

Industrial Expertise and System Governance

My professional history demonstrates a unique duality between heavy industrial engineering and complex security systems management. I have mapped out my experience in electrical assessment and sustainability, particularly within the frameworks of City Power and various sector-specific training authorities. By resolving contradictions between theoretical curriculum design and practical workplace requirements, I have developed a 'Portfolio of Evidence' approach that ensures technical competence is traceable and meets international standards for industrial compliance and safety.

Action Plan for Professional Synthesis

I am now moving toward a final synthesis of my diverse professional identity, focusing on organizing a comprehensive bibliography of my numerous technical manuscripts and institutional submissions. I will prioritize clarifying my associations with specialized international training colleges to ensure a complete picture of my security engineering and educational policy credentials. My final objective is to integrate these various strands—ranging from patent claims to parliamentary policy advocacy—into a unified professional profile.

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Interdisciplinary Engineering and Research Mastery

I have synthesized a comprehensive profile of my academic and professional journey, confirming my progression toward a Doctorate in Engineering. My background is uniquely characterized by the integration of traditional electrical engineering—specifically in industrial power systems and motor controls—with cutting-edge research in nanotechnology and Artificial

Intelligence. I have identified clear evidence of my expertise in developing modular frameworks that bridge the gap between vocational training and high-level technical research, particularly through my affiliations with Atlantic International University and technical bodies in South Africa.

Innovative Frameworks and Signal Logic

A major insight from my recent work is the development of the 'Career Drawing Total Programming' and 'Application Trade Discovery' systems. These frameworks resolve the information gap between theoretical curriculum design and practical industry needs by using signal-driven logic, such as Visual Basic logigrammes and PLC command circuits. I have successfully published technical reports on global platforms that detail how autodidactic learning can be structured to support patent claims and innovations in electrical, energy, and digital systems, ensuring that technical competence is both traceable and audit-ready.

Strategic Advocacy and Technical Governance

I have mapped out my extensive engagement with national policy through multiple submissions to parliamentary committees regarding higher education and mineral resources. These efforts highlight my role as a technical scientist advocating for socio-economic development through improved educational technology. By aligning my professional experience in security engineering with national qualification frameworks, I am creating a unified system for tracking career progression, which includes a vast bibliography of research on rural energy solutions and industrial efficiency.

Consolidating the Professional Portfolio

Thinking through the final stages of this research, I am now focusing on the meticulous organization of my extensive list of thesis titles and technical publications into a structured bibliography. I will finalize the extraction of specific professional identifiers, such as application IDs and certification numbers, to provide a verified account of my industrial and academic credentials. My next step is to unify these diverse strands—from electrical panel design to advanced nanotechnology research—into a singular, cohesive research tool for user evaluation.

Vocational and Academic Synthesis

I have successfully synthesized a complex professional profile that bridges high-level academic research with practical vocational mastery. My investigation reveals a unique educational trajectory, combining electrical engineering diplomas with advanced studies toward a Doctorate. I have identified clear links between my foundational training at the University of Kinshasa and my current research in 'Career Drawing Total Programming,' which integrates vocational diagnostics with academic rigor. This mapping highlights a seamless transition from industrial electrical training to the design of sophisticated technical frameworks for global research platforms.

Innovative Technical Frameworks

A significant insight I've uncovered is the development of an 'Application Trade Discovery' system, which utilizes signal-driven logic and Visual Basic logigrammes to track professional development. This framework resolves the traditional gap between manual trade expertise and digital management by treating career progression as a modular engineering project. I have analyzed technical reports detailing the use of PLC command circuits and microcontroller loops to monitor energy output and grid stability, demonstrating a fusion of energy engineering with digital automation and autodidactic learning methodologies.

Institutional Engagement and Policy Advocacy

My research into public records has clarified a robust history of engagement with national governance, specifically through submissions to various portfolio committees. I have traced communications sent to departments overseeing higher education, science, and mineral resources, which advocate for socio-economic development through technical efficiency. These efforts are part of a broader strategy to align professional security engineering and electrical training with national qualification frameworks, ensuring that industrial skills are recognized at a policy-making level.

Finalizing the Professional Repository

Thinking through the final organization of this data, I am now focusing on categorizing an extensive bibliography of over seventy technical manuscripts and thesis documents. I will integrate these diverse strands—ranging from nanotechnology in mining to rural energy systems—into a structured record of innovation. My next action is to verify specific professional certifications and institutional identifiers to provide a definitive account of my industrial and academic contributions.



Based on 44 sources

Module Name	Technical Description	Standards/Regulatory	Operational Framework	Data Metric/V	Credential Mapping	Source
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Domain		Compliance	Component	Value	(Inferred)	
GENIAC /	A multi-disciplinary module and flagship initiative (Operation GENIAC) focusing on military-grade logic, research, and technical trade skills. Includes the State Asset Information Management System (SAIMS) for digitizing and automating public infrastructure assets, tactical engineering systems (bridge building, watermanship), and generative intelligence for transformer science and human-machine collaboration.	SAQA, NQF, MIL-STD, ECSA, POPIA, IFMS, BBEE, PSIRA, SABS, DHET, SANDF, SAPS, IEC	Infrastructure Overhaul, Defense Planning, and Cybersecurity (ZTNA, NAC)	Budget: R40,000,000 to R50,000,000; R600M investment; R1B revenue target; 75MHz clock speed; 64KB memory; Combat Mass: 30F	NQF Level 6–9 (National Diploma to Master's Degree level); Professional Recognition in Utility Management	[1-8]
	S.E.E.E.I Urban Energy	Social Education	SAQA, NQF, SABS, Grid Infrastructure,	0.3 to 0.4 kWh/day	NQF Level 6–10	[1-8]

(Framework)	Governance / Infrastructure Policy	and Industrial Trade Vocational career module and holistic framework (Strategic, Economic, Environmental, Engineering, Institutional, Social, Utility, Asset). Focused on rural/urban electrification, grid overhaul, intergovernmental energy regulation (South Union Africa), and circular assessment for engineering subjects.	SANS, ISO 37301, SGB, QCTO, ECB, PSIRA, DHET, NFPA 70-2014, NDP 2030, ERRP, Public Procurement Act (2024)	Energy Management, and Policy Scaffolding	limit; 13.8kV Primary/4.16kV Secondary ; 3750KVA ; 3600 kWh annual index; R350B/year public investment target; 87% machine availability	(National N Diploma to Infrastructure Management); Professional Engineer/Techhnologist
Madinda Utilities AMI Rollout	Advanced Metering Infrastructure / Electrical Engineering	National rollout of DLMS/COSEM-compliant hardware for urban revenue protection, featuring localized	IEC 62056-5-3, DLMS/COSEM, AFSEC, SABS, NRS 049-2:2024	Industrial Localisation and AMI Manufacturing	0.3-0.4 kWh daily production (SHS); >\$126M COP24 grant; 2,700 direct jobs	Technical leadership in smart grid manufacturing (NQF Level 6) [7, 9]

		manufacturing (two production plants and 13 satellite warehouses).				
Advanced Electrical Engineering Curriculum	Education Technology / Power Systems	Structured technical training encompassing Advanced Electromagnetic Theory, DSP, Control Systems Design, and Renewable Energy Systems. Regulation and control of the security occupation	NRF, SARAO, ECSA, SAQA ID 90674, QCTO	Curriculum Assessment and Audit-Ready Learning Pathways	360 Credits (NQF Level 6); ICASS Test Weightings: 30% (Test 1), 70% (Test 2)	Academic mapping to National N Diploma and Professional Engineering registration [7, 10]
PSIRA Compliance and Security Policing	Security Policies and Law Enforcement	in the public/national interest, including the installation of electronic security systems.	PSIRA Act 56 of 2001, SASSETA, LRA	Security Management and Intelligence Infrastructure	30 to 90 days standard investigation period	Professional Security Certification (Grade A, B, C) [1]
National Trade Portfolio Evaluation	Security and Education Policy	Comprehensive assessment of trade portfolios including site inspections	QCTO, SAQA, NQF	Work-Based Learning (WBL) / Portfolio of Evidence	2,670 hours (24 months) relevant work experience required	NQF Level 6 / Professional Artisan Status [11]

		at utilities (City Power/Eskom) for work readiness.					
		Introduction to digital system					
Embedded Systems and Digital Logic	Educational Technology / Computer Engineering	fundamentals, Boolean algebra, logic gates, and algorithmic state machines for microcontrollers. Systems for tracking student progress, career alignment, and security policy integration using data science.	NQF Level 6, IEEE Standards	Software and Hardware Integration Framework	120 credits minimum	Bachelor of Science in Engineering (NQF Level 7/8)	[1]
Information Management Systems	Educational Technology / Security Policy	Framework combining academic-based (NATED) and practical-based (NCV) systems for holistic engineering education.	SAQA, LRA, CCMA, POPI Act	Log Activity and Information Management System	100 MB storage limit; 360 credit points	ICT Support Specialist / Data Scientist (NQF Level 5-7)	[5]
NATED / NCV Integration	Vocational Education Curriculum		NQF, DHET, QCTO	Blended Learning (Online/Classroom/Workplace)	ICASS Weighting : Test 1 (30%), Test 2 (70%)	National N Diploma (NQF Level 6)	[12, 13]
Smart Power	Urban Energy	Three-phase smart	IEC 62056, IEC 61850	Data Inventory Management	240 VAC +20%; 0-	Electrical Systems	[4]

Metering Module	Management	power measurement system utilizing GPRS for remote communication and billing data processing. Advanced electronic principles including AC theory, power supplies, amplifiers, and transducers. Programming and integration of			60A range; 10 kWh energy limit	Technician (NQF Level 6)	
Industrial Electronics (N5)	Power Control and Signal Processing	programmable logic controllers for process machine control and variable speed drives. Advanced didactic laboratories and manufacturing simulations combining AI-driven analytics, IoT devices, and	SANS 10142-1, OHS Act	Technical Calculations and Derivation	80% pass mark; VDC ≈ 3 09.6V	Electronic Engineer / Systems Optimizer (NQF Level 6)	[5]
Modicon PLC Configuration	Industrial Automation and Control	programmable logic controllers for process machine control and variable speed drives. Advanced didactic laboratories and manufacturing simulations combining AI-driven analytics, IoT devices, and	IEC 17025, SANS Class 0,2	Technological Integration / Digital Transformation	30kA SCCR; 230V AC Coil; 1200 note/Min	Technical Expert / Automation Specialist	[6]
DL SGWD-AI / FACTORY-AI	Smart Grid & Factory Automation	programmable logic controllers for process machine control and variable speed drives. Advanced didactic laboratories and manufacturing simulations combining AI-driven analytics, IoT devices, and	ISO 9000, IEEE, MODBUS RTU, RS485	Infrastructure Overhaul / Curriculum Strategy	Class 0.2 Accuracy; OEE: 50%	Smart Grid / Industrial Automation Engineer (NQF Level 6)	[2]

		electrical networks. Embedded protocols for				
GENIE (SECURITY / POLICE)	Cyber Resilience / Regulatory Enforcement	infrastructure protection, biometrics, and municipal/industrial energy compliance auditing. Foundation al training in DC	PSIRA Grade A–E, MIL-STD, DHET, OHS Act	Intrusion Detection and Industrial Zone Regulation	Security Posture: SAST/DAST metrics; 80% vending compliance	Security Management Professional / Compliance Officer [8]
Electrical Trade Theory N1-N2	Military Combat and Electrical Engineering	theory, wiring standards, and magnetism applied to industrial and security infrastructure.	SANS 10142-1:2024, MIL-STD, IEC	Curriculum Structure / Blended Learning	Pass Mark: 40%; Duration: 3 hours; 30% DC Theory weighting	NQF Level 2 / Trade Test Eligibility [11]
TeSys™ T LTMR	Motor Management and Control	Motor management controller providing monitoring, protection, and control functions.	IEC 61508, SIL 2, IEC 60364	Logic Solver with Passive Input	4-20mA loop current (3.6mA low to 21mA high)	Technical Systems Operator/Maintenance Engineer [3]
Matrix-UPS	Power Protection and Distribution	Line interactive uninterruptible power supply for protected computer loads.	UL 1778, CSA C22.2, EN 60 950, FCC Part 15	Power fault detection and isolation filter	Efficiency : 93% at 100% load; Overload: 10 sec at 200%	Data Center Infrastructure Specialist [3]
Transfor	Electrical	Calculation	SANS 10142,	Data Inventory	3200 kVA	Power [2]

mer Systems Analysis	1 Infrastructure	s and design for substation transformer s and medium-voltage distribution networks. Electronic duty book automation and	IEC 60364		Peak Capacity	Systems Technician	
MetBook Operations	Security Sector Policy	licensing administrati on for policing and private security sectors. Models impact, response, and investigatio n protocols for infrastrucre safety and tactical readiness. Secure transaction processing system with PIN encryption and database integration for auditing.	PSIRA, SASSETA, SAPS	Infrastructure Overhaul	9000V Fence Threshold	Security Licensing Administrator	[2]
Collision Scenario Engine	Simulati on / Industri al Safety	and investigatio n protocols for infrastrucre safety and tactical readiness. Secure transaction processing system with PIN encryption and database integration for auditing.	MIL-STD-882	Diagnostic modeling and scenario investigation	Impact diagnostic simulation ; RRT algorithms	Safety Engineer / Systems Analyst	[8]
Automated Teller Machine System	Security & Financia l Technol ogy	Secure transaction processing system with PIN encryption and database integration for auditing.	PSIRA, ISO/IEC 27001	Security Policy Implementation	6.5 Service Charge; 150 Balance; PIN 9343	Security Software Developer (NQF Level 7)	[4]
Microgrid Optimiza	Urban Energy Govern	AI-driven optimizatio n for hybrid	SABS, Dept of Energy (RSA)	Infrastructure Overhaul / Rural Electrification	0.3 to 0.4 kWh per day SHS;	Master of Engineering (MSEE)	[6]

tion Module	nce	renewable microgrids and smart grid energy storage technologies. Mandatory units			Budget: \$4,000,000		
Energy: Domestic Systems	Renewable Energy / Electrical Engineering	covering wind turbine systems and solar hot water systems for domestic use. Transdisciplinary framework for technical system analysis through schematic interpretation and fault diagnostics. Visual Basic automation suite used for validating N4–N6 credentials and diploma authenticity	National Occupational Standards (NOS), SCQF	Curriculum Assessment Strategies	24 SCQF credits; ±3mm tolerance level	Engineering Technician / Renewable Energy Installer	[5]
Drawing Analyse Design System	Engineering & Education Technology	for technical system analysis through schematic interpretation and fault diagnostics. Visual Basic automation suite used for validating N4–N6 credentials and diploma authenticity	SAQA, NQF, ISO 1999	Curriculum Assessment Strategy	12.88 MB File Size; 32.768kHz Crystal Frequency	Trade Theory Certification (NQF Level 4/5)	[4]
Electrical Diploma Validator	Education Technology / Credentialing	for validating N4–N6 credentials and diploma authenticity	SAQA, DHET, QCTO	Credential Dashboard with NQF Tracking	Automation logic for 360 credits validation	Academic Registrar / Assessment Moderator	[8]
Schneider Home Certification	Home Energy Management	Training for installing and	NABCEP	Commissioning with eSetup App / Smart Panel App	80% passing score	Professional Installer Certification	[3]

ion	ment	commissioning home energy management systems including inverters.			required
Traction Substations (Type 1 & 2)	Railway and Urban Transportation	Facilities responsible for supplying trains with electrical energy.	Not in source	Operational Management (Monitoring and Control)	Manage ~75% of railway electricity; 25kV AC / 600V-3.3kV DC Electrical Infrastructure Project Manager [3]

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Date	Institution / Platform	Item / Module	Sale Price	Amendment	Final Cost	Award / Certificate	Status	Notes / Integration Points	Source
2025-10-08	Atlantic International University	MBM302 Master Thesis Review	\$450.00	Research Grant Applied (- \$150.00)	\$300.00	Master of Engineering Systems – Thesis Accepted	Accepted	Portfolio artifact submitted to [1] LMS and AIU	

				)				Library SCQF/NQF Level: 8. Portfolio artifact submitted to [1] NRF dashboard and AIU Library
202 5- 10- 08	NRF / AIU	MATLAB Research License	R12,00 0.00	NRF Grant Applied (- R8,000. 00)	R4,00 0.00	IJETR3156 – Paper Accepted	Accept ed	
202 5- 10- 08	NSF / F1000R esearch	Open Access Publicatio n Fee	\$1,200. 00	NSF Grant Applied (- \$800.00)	\$400. 00	F1000Research Poster Accepted – Helicases and Translocases	Accept ed	Publication indexed in PubMed Central and [1] linked to AIU thesis
202 3- Pre sent	Atlantic Internati onal Universi ty (AIU)	Doctorate in Engineeri ng (Specialist Infrastruct ure)	\$35.00	Not in source	Not in source	Doctorate in Engineering (In Progress)	Pendin g	Focus on infrastructur e, sustainabilit [2] y, and credential reform
202 5- 10- 08	ECSCA / CCMA / Home Affairs	Profession al Engineeri ng Registrati on	R1,500 .00	Acade mic Grant Applied (- R500.0 0)	R1,00 0.00	Certificate – Registered Professional Engineer	Record submitt ed	Record submitted to CCMA dispute resolution [1] log and Master Court archive
Not in sou rce	SAQA / NATED	National N Diploma in Electrical Engineeri ng	Not in source	Not in source	Not in source	National N- Diploma (N4–N6)	Audit Readin ess	SCQF/NQF Level 6; ID: 90674; Includes WA code [2] competency mapping for ECSA registration
201 2- 07- 01	Cape Peninsul a Universi	Doctor of Technolog y: Engineeri	Not in source	Replac ed by ID 97019	Not in source	Doctoral Degree	Passed End Date (2014-	SCQF/NQF Level 10; 240 Credits; [3] HEQSF

		ty of Technol ogy / SAQA	ng: Electrical (ID 78780)					12-31)	sub- framework	
202 5- 10- 08	Schneid er Electric / Eaton	EcoStruxu re Smart Panel	R12,00 0.00	Club Clipsal Loyalty Credit (- R2,000. 00)	R10,0 00.00	Certificate – Energy Management Compliance	Record submitt ed		Record submitted to GitLab audit log and Azure DevOps billing portal Record submitted to LMS and GitHub audit log Record submitted to municipal audit portal and SCQF/NQF compliance dashboard Linked to GitHub/Git Lab audit sheet; Power Managemen t focus EQF Level 5; NSF Codes 227, 250, 255; RNCP4100 7; Smart electrical installations Articles D643-1 to D643-35-1; OQSF compliance	[1]
202 5- 10- 08	Eaton Power Advanta ge	9PX UPS System Sale	R18,00 0.00	Partner Discou nt (- R3,000. 00)	R15,0 00.00	Certificate – Power Management Fundamentals	Record submitt ed			[1]
202 5- 10- 08	City Power Johanne sburg	Smart Meter Installatio n – Industrial Zone 3	R3,200 .00	Eskom Loadsh edding Adjust ment (- R830.0 0)	R2,37 0.00	Certificate – Energy Efficiency Compliance	Audit readine ss			[1]
15 Oct 202 5	National Science Foundati on (NSF)	NSF Pitch #0011059 6	\$1,000. 00	- \$250.00	\$750. 00	Pending Review	Audit Ready			[4]
202 5- 09- 01	Ministry of Higher Education and Research (France)	BTS Electrotec hnics (Electrote chnique)	Not in source	Not in source	Not in source	Brevet de Technicien Supérieur (BTS)	Registr ation start date			[3]
202 0- 03- 17	Govern ment of France (Journal Officiel)	Decree defining BTS Electrotec hnique	Not in source	Modifie d 2023- 01-05	Not in source	Official Decree	Legally active			[3]

			delivery conditions						
2025-10-08	GitHub	Reward Model Deployment – PRM	\$120.00	Open Source Credit (- \$40.00)	\$80.00	Contributor Badge – RewardHub	Record submitted	Record submitted to GitHub audit log and Archive.org metadata index Size: 20.7 MB. Used for mapping legacy-to-modern product equivalence and trade test validation Integrated with LMS platforms for sustainability training	[1]
2024-11-20	Schneider Electric	Masterpack MTZ Substitution & Technical Guide	Not in source	Not in source	Not in source	Technical Guide	Audit trace enabled		[5]
2021	Schneider Electric	Industrial Automation & Sustainability	Not in source	Not in source	Not in source	LMS-integrated module	Completed		[2]
21 May 2025	Digital Factory / Schneider Electric	Altivar Machine Professional Certification (Version 23.0)	Not in source	Not in source	Not in source	Altivar Machine Professional	In Progress	30+ hours curriculum; includes ATV320/340 and ATS480 functions	[4]
Not in source	Schneider Electric University	Professional Energy Manager (PEM)	Not in source	Not in source	Not in source	Professional Energy Manager	In Progress	68h 15min curriculum; 91 modules including HVAC and Energy Audits	[4]
14 Jan 2024	Industrial Automation	EasyLexium 16 Servo Drives &	Not in source	Not in source	Not in source	Not in source	In Progress	eLearning module; covers motion and	[4]

	Academ y / Schneid er Electric	BCH Servo Motors						HMI	
202 4- 202 5	SQA	Electrical Engineeri ng Principles (J6CW 47)	Not in source	Not in source	Not in source	SCQF Level 7	Pilot (NextG en HN v4.0)	24 Credit Points. Outcomes include DC Principles and Three- Phase Principles Topics: Project Planning, Amplifier Design, Solar Heating. Worksheet required 75 marks total. Includes modules on Project Managemen t and Structural Analysis Mapped to SANS 10142-1 standards; 100 hours total work schedule SCQF/NQF Level 03; 133 Credits; Mining Specializati on (ID 72071)	[6]
202 3- 05- 16	SQA	AH Engineeri ng Science 2023 (X823/77/ 11)	Not in source	Not in source	Not in source	Advanced Higher	Audit- ready		[6]
202 5- 05- 16	SQA	AH Engineeri ng Science 2025 (Paper X823/77/1 1)	Not in source	Not in source	Not in source	Advanced Higher	Audit readine ss		[6]
202 4	SQA / DHET	Engineeri ng Trade Theory (N1-N2)	Not in source	Not in source	Not in source	Trimester Evaluation	Comple ted		[2]
201 9- 12- 05	SAQA (South African Qualific ations Authorit y)	National Certificate : Electrical Engineeri ng (ID 72051)	Not in source	Replac ed ID 48475	Not in source	National Certificate	Passed End Date (2023- 06-30)		[3]

2025-10-08	Alison Learning	Diploma in Electrical Engineering	\$124.46	October Sale Discount (-25%)	\$93.35	CPD Accredited Diploma – Electrical Engineering	Record submitted	Record submitted to SCQF/NQF dashboard and GitHub credential repository [1]
Not in source	ALISON	Professional Certification Journey	Not in source	Not in source	Not in source	Certification Modules	Completed	Digital credentialing for lifelong learning scaffolding SCQF/NQF Level: 4, WA Code: EA2. Portfolio artifact submitted to LMS [2]
2025-10-08	Sci-Bono Discovery Centre	Electrical Wiring Kit	R450.00	DHET Grant Applied (-R150.00)	R300.00	Certificate – Basic Electrical Safety	Portfolio artifact submitted	Level: 4, WA Code: EA2. Portfolio artifact submitted to LMS [1]
2020	Sci-Bono / DHET	Facilitator Training & Curriculum Mapping	Not in source	Not in source	Not in source	DHET-accredited certification	Completed	Focus on educator training and curriculum design [2]
2025-10-08	St Peace College	Engineering Drawing Textbook	R350.00	Academic Grant Applied (-R100.00)	R250.00	Certificate – Fundamentals of Electrical Systems	Submitted for moderation	SCQF/NQF Level: 5. Portfolio artifact submitted for moderation [1]
2025-10-08	Shoprite / CNA / Elektor	Elektor Electronics Starter Kit	R450.00	Subscriber Discount (-R90.00)	R360.00	Certificate – Electronics Fundamentals	Record submitted	Record submitted to GitHub credential repository and SCQF/NQF dashboard [1]
2025-10-08	SASSETA / CCMA	Labour Law Training	R1,200.00	UIF Credit Applied	R800.00	Certificate – Workplace Dispute Resolution	Record submitted	Record submitted to MERSETA [1]

08		Module		(-R400.00)				dashboard and Home Affairs compliance log	
2015-05-18	QCTO	Electrical Engineering N4-N6	Not in source	Not in source	Not in source	NATED Accreditation	Accredited (Exp: 2020-05-18)	Provider: Academy of Training and Development. Accreditation No: NATED/15/0417	[7]
2025-10-08	Metropolitan Police UK	Use of CCTV footage for research	£500.00	Academic Research Waiver (-£200.00)	£300.00	Publication Approved – F1000Research	Approved	IP license granted under non-commercial clause; record submitted to ORCID	[1]
Not in source	JGU / Public Policy Program	MA Public Policy	₹3,00,00.00	Not in source	~\$3,400.00	Master of Arts	Audit Readiness	Tracks: Data Analytics / Policy Design. Integration with SQL and dashboard logic	[7, 8]
2024-10-04	GitHub / Microsoft Learn	Accelerate app development by using GitHub Copilot	Not in source	Not in source	Not in source	Module Assessment Passed	Complete (100% Score)	Duration: Various. Part of APL-2007 path. Integration with Visual Studio Code	[5, 7]
2024-11-16	Microsoft Learn	Build custom agents for Microsoft	Not in source	Not in source	Not in source	Learning Path Complete	Complete	Focused on business needs environment	[5, 7]

		Teams						t. Logged in Training Transcript	
2023	Microsoft	Digital Credentialing & LMS Strategy	Not in source	Not in source	Not in source	Portfolio-ready credential	Completed	Strategic integration for digital portfolio scaffolding	[2]
15 Oct 2025	PRM	Engineering Career Discovery Journey: Experimental, Theoretical, Practical	Not in source	Not in source	Not in source	Transcript Report	Completed	Integrated with SAQA, BICSI, CPD; includes business and digital skills	[4]
2018-08-01	NIMI (National Instructional Media Institute)	Electrician 1st Year (Volume I) Trade Theory - NSQF Level 5	₹285.00	Not in source	₹285.00	Not in source	Published	NSQF Level 5; Electrical Sector; Semester Pattern	[3]
Not in source	Burger Huyser Attorneys	Complete Engineering Patent Filing (South Africa)	R25,000.00	to R30,000.00	R30,000.00	Patent Grant	Service pricing	Legal protection for 20 years; excludes PCT international filing fees	[3]
2025-11-03	Open Source / Community Texts	Design Career 10 Application Trade Drawing Orthopedic Material Didactic Lesson Plan	Not in source	Not in source	Not in source	Creative Commons BY-NC-SA 4.0	Published	Size: 119.7 MB. Grade 10 career scaffolding. Integrated via UserForm190000002	[5]
2024-	F1000Research	Career drawing	Not in source	Not in source	Not in source	DOI: 10.7490/f1000research	Published	Version 1; not peer	[5]

10-26		total programming: Analysis, Design, Investigation				rch.1120368.1			reviewed. Includes PCB implementation and Visual Basic Focus on deepfakes and provenance tracking; integration with dashboards	
18 Nov 2025	IEC Webinar	Advancing Standards for Digital Authenticity	Not in source	Not in source	Not in source	Webinar Insight Log		Scheduled		[8]
2026-03-15	SQA	Community Garden Volunteering Day (Responsible Business Task)	Not in source	Not in source	Not in source	Work Experience Task		Scheduled	Place: Glasgow Hidden Gardens. Risk assessment via SQAForm Multimedia training system; USB Interface; includes 3 test cards	[6]
Not in source	Lucas-Nülle	UniTrain-I: DC Technology Course (SO4204-4D)	Not in source	Not in source	Not in source	Course Certificate		Audit Ready	Course code: GSCHSES0001004; Basic level safety training Linked to Azure DevOps and GitHub Copilot modules for audit	[3]
18 Apr 2024	Underwriters Laboratories (UL)	Electrical Arc Flash Awareness	Not in source	Not in source	Not in source	Not in source		In Progress		[4]
Not in source	ISC2 / Credly	Certified in Cybersecurity (CC)	Not in source	Not in source	Not in source	Digital Badge		In Progress		[4]
Not	Salesfor	CRT101	Not in	Not in	Not in	Salesforce Certified	In		Integrated	[4]

	in ce / sou rce	Salesforce Trailhead Certified Administrator	source	source	source	Administrator	Consid eration	with Agentforce topics and career discovery dashboards	
201 7- 01- 01	Canal-U / Callisto / Urfirst	Tutorial on invention patents - Module 8 Introduction	Not in source	Not in source	Not in source	Not in source	Online (2022-05-13)	Covers European patents (EP) vs PCT; Creative Commons CC BY-NC-SA	[3]
201 6- 10- 06	French Ministry of National Education	Circular No. 2016-133: Delivery of certificates for competency blocks	Not in source	Not in source	Not in source	Attestation of competency blocks	Official Bulletin No. 36	Law No. 2014-288; modularization of diplomas; RNCP integration	[3]
14 Jan 202 4	Digital Factory / Schneider Electric	Robotics (Test)	Not in source	Not in source	Not in source	Not in source	Failed	Score: 44% (passing 70%); Course code: INDTECT0001000	[4]
14 Jan 202 4	Buildings Business 1 / Schneider Electric	Physical Infrastructure Management Basics Quiz	Not in source	Not in source	Not in source	Not in source	Failed	Score: 30% (passing 80%); Course code: BLDSALE1234034	[4]
01 Sep 202 5	F1000R esearch	Career Discovery and Mentoring Framework for TVET	Not in source	Not in source	Not in source	Not in source	REJEC TED	Document submission; Author: Tshingombe Tshitadi	[9]
17	F1000R	Case	Not in	Not in	Not in	Not in source	REJEC	Article	[9]

Apr 2025	Research Report: Master Energy Rural Career Experimental Engineering Electrical	source	source	source	TED	submission; Author: Tshingombe Tshitadi
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- [9] F1000Research Submissions and Rejections

Section/Topic	Description	Field/Discipline	Qualification/Award	Institution	Outcome/Requirement	Source
Electrical Engineering (N1–N6)	Comprehensive curriculum covering Electrical Trade Theory, Industrial Electronics, Electrotechnics, Power Machines, and Engineering Science. Includes AC/DC machine theory, transformers, and industrial	Electrical Engineering	National N Diploma / N1–N6 Certificates	St Peace College / DHET / SAQA	Completion of ICASS, ISAT, and external national examinations; NQF Level 6 (360 credits) and 18–24 months practical experience.	[1–11]

	electronics modules.					
	Processing of labour disputes, unfair dismissals, and conciliation/arbitration under the LRA. Handles rescission rulings (Section 144), enforcement of awards (Section 143), and military arbitration.	Labour Relations / Law	CCMA Award / Settlement Agreement / Rescission Ruling	CCMA / Labour Court / ELRC / SANDF	Settlement of jurisdiction referrals, certified awards, or variation orders; issuance of awards within 14 statutory days.	[1-3, 6-8, 11-21]
SAQA Foreign Qualification Evaluation	Policy and criteria for the recognition of foreign school-leaving and higher education qualifications within the South African NQF.	Educational Policy / Regulatory	SAQA Evaluation Certificate / Tracking ID: 2403110060003192	SAQA (South African Qualifications Authority)	Compliance with NQF Act 67 of 2008; recognition limited to documents issued by official national examination bodies.	[1, 2, 7-9, 13-15]
Advanced Electromagnetic Theory	Graduate-level study of Maxwell's equations, field theory, electrostatics, magnetostatics, and wave propagation using analytical and computational methods.	Electrical Engineering	Master's Degree / Doctorate (Specialist)	Atlantic International University (AIU) / University of Buea	100% grade achievement; ability to solve boundary condition problems and simulate electromagnetic fields.	[7, 10, 12, 20, 22, 23]
Madinda Utilities AMI Rollout	National rollout of Advanced Metering Infrastructure (AMI) systems across 186 municipalities,	Utility Engineering / Infrastructure	Professional Project Implementation	Madinda Utilities / DTIC / SABS / Eskom	DLMS/COSEM compliance; revenue protection and reduction of non-technical losses via automated	[10, 23, 24]

	including manufacturing and satellite warehouses.				load management.	
Drawing Analysis & Design System	Transdisciplinary framework for analyzing and designing technical systems through schematic interpretation, flow diagrams, and fault diagnostics.	Engineering Drawing / EdTech	WA-coded workplace competencies / Portfolio cornerstone	SAQA / Atlantic International University (AIU)	Integration of drawing logic into LMS modules and assessment rubrics aligned with NQF descriptors.	[3, 13, 16]
AI Fluency & Robotics	Modular programs covering AI basics, Generative AI, Responsible AI, and didactic frameworks for PLC-controlled motor automation.	Artificial Intelligence / Automation	6 AI Certifications / Technical Certification	Sci-Bono ICT Academy / Microsoft / De Lorenzo S.p.A.	Completion of 44 videos (5 hours); development of solutions for anomaly detection and process optimization.	[8, 13, 14, 25]
Vertical Farming & Urban Agriculture	Course exploring the intersection of vertical farming, synthetic biology, and genetic engineering for sustainable food production.	Agricultural Tech / Synthetic Biology	Master's Degree	Atlantic International University (AIU)	Practical skills to design and implement urban farming systems leveraging biosystems.	[3, 13, 16]
Mining Qualifications Authority (MQA)	Skills development in the mining and minerals sector, focusing on artisan development in scarce skills.	Mining Engineering	Artisan Status (Boilermaker, Diesel Mechanic, etc.)	MQA / DMR	Facilitate accreditation and workplace experience under the Skills Development Act 29.	[3, 6, 8, 14]
Security	Accreditation,	Security	PSIRA Grade	PSIRA /	Successful	[2, 4,

Services & PSIRA Compliance	operational grading, and syllabus for private security service providers and guard programs.	Science	A–C / Supervisor	SASSET A	completion of unit standards, SAPS criminal record clearance, and OHS risk assessments.	13, 14]
Electrical Installation & Standards	Technical specifications for low-voltage installations, voltage drop limits, and circuit breaker ratings.	Electrical Engineering	Certificate of Compliance (CoC)	SABS / SANS / Dept. of Labour	Adherence to SANS 10142-1 (Wiring of Premises) and OHS safety codes.	[1-3, 9, 12, 21, 26]
Power Generation & Substation Systems	Study of thermal, hydel, and solar power plants; includes component identification (CT/PT, breakers, alternators).	Power Engineering	NSQF Level 5 Competency	NIMI / ITI / St. Peace College	Ability to draw single-line diagrams and interpret technical specifications for transmission-grade deployments.	[1, 9, 27-29]
Control Systems Design	Modeling (transfer function, state-space), stability analysis, LQR, and Kalman filters using MATLAB/Simulink.	Electrical Engineering	Postgraduate / ECSA Aligned	University of Pretoria / Purdue / AIU	Design of performance-oriented controllers; integration of state-space and frequency-domain methods.	[10, 23]
Digital Signal Processing	Advanced DSP transforms (DCT, KLT, wavelets), adaptive filtering (LMS, RLS), and multirate processing.	Electrical Engineering	Postgraduate / NQF Level 7 Aligned	NIT Warangal / Unisa / AIU	Analyze discrete signals and implement adaptive filtering via MATLAB simulations.	[10, 23]
Digital Systems & VBA Automation	Integration of VBA automation for student records, engineering	Digital Systems	Doctorate in Engineering (Candidate)	Atlantic International University (AIU)	Creation of audit-ready documentation and automated fault analysis	[30]

	calculations, and PLC simulation logic.				tools for curriculum reform.	
Engineering Project Specification	Technical parameters for power meters, communication interfaces, and surge protection in facilities.	Electrical / Defense Systems	Unified Facilities Guide Specs	Department of Defense / SANDF / Eskom	Compliance with MIL-STD-462D, IEC Class 0.2 accuracy, and identifier 240-61268959.	[2, 7, 14, 29]
Electronic Practice & Technical Training	Hands-on workshop exercises for control panel wiring, motor drive commissioning, and soldering.	Vocational Training	NSQF Level 5 / Module 1-4	NIMI / SAQA / DHET Framework	Portfolio of Evidence (PoE) including wiring diagrams, fault logs, and 525 hours of training.	[2, 6, 9, 27]
Biomedical Engineering Laboratory	Design, manufacture, and repair of medical equipment using De Lorenzo didactic systems.	Biomedical Engineering	Professional Competency	De Lorenzo S.p.A.	Understanding sensors converting ion flows into electrical currents; alignment with trade test units.	[25, 31]
Supply Chain Management & Traceability	Integration of software engineering, blockchain, and IoT for supply chain digitalization.	Supply Chain Management	Master's Degree	Atlantic International University (AIU)	Implementation of security and privacy in supply chain software via real-world case studies.	[4, 5]
Mathematics & Engineering Calculus	Critical analysis of rates of change, limits, binomial expansion, and system dynamics.	Mathematics	Mathematics N4	Not in source	First and second derivatives for optimization; calculation of torque and voltage inductance.	[5, 17]
Technical Expert Assessment (TEX)	Formal diagnostic pathway for evaluating inoperative	Engineering Diagnostics	Evidence artifacts	Schneider Electric	Technical assessment of electrical product failure for NQF alignment.	[18, 19]

	electrical products.					
Industrial Automation & Modicon Integration	HVAC and automation control systems using Modicon controllers and NTC sensors.	Industrial Automation	Project-Based Competency	Schneider Electric	Design of modular control architectures with End-of-Life (EOL) component management.	[29]
ICT & Technical Skills Academy	Training for youth in CCNA, Linux, IoT, and Python Essentials.	ICT / Computer Science	Certiport Expert (Office Suite)	Sci-Bono ICT Academy	Accredited programs in End User Computing and System Support.	[14]
Psychometric Grade Rank Calculation	Weighted score calculation based on cognitive ability (40%), personality (30%), and integrity (30%).	Psychometry / HR	Certified Evaluation (CPER)	SARS / SARB / 9 LINKS	Benchmarking for career readiness; variance gate ≤ 10 ; mean score ≥ 25 .	[32]
Autotronics Training	Training panel representing the operation of engine ignition components.	Automotive Engineering	Vocational Skill Certification	De Lorenzo S.p.A. / Northlink College	Ability to troubleshoot electronic ignition control systems.	[31]
Applied Policing & Crime Resolution	Investigative techniques, evidence handling, and web-based crime management systems.	Law Enforcement	National Diploma (NQF Level 6)	ST Peace College / Samara Police	Practical assessment (70%) and theory (30%); automated data storage for crime records.	[5, 15, 16]
Voltage & Component Calculations	Calculation formulations for $V(t) = C1 \int i(t)dt + V0$ and transformer impedance $Z = R + jX$.	Electrical Engineering	National Diploma / NATED	City Power / St Peace College	Verification of calculation accuracy and adherence to IEC/SANS voltage drop limits.	[3, 16, 26, 30]
Renewable Energy: Wind & Solar	Theoretical and practical understanding of domestic wind turbines and PV	Renewable Energy	National 5 Skills / N6	SQA / Schneider Electric	6 SCQF credits; compliance with IEC 61115-1-2 and SANS 10142-1.	[17, 26]

	installation.					
Asset Management Automation	Digitization of infrastructure using the State Asset Information Management System (SAIMS).	Infrastructure Management	Operation GENIAC Framework	DPWI / National Treasury	Cloud-native architecture; real-time visibility and risk-based management.	[10]
NATED N1–N3 Phase-Out	Discontinuation of NATED Report 191 N1-N3 programs due to NQF misalignment.	Technical Education	NATED N1-N3	DHET	Programs ceased as of 1 January 2024; articulation to N4 Engineering Studies.	[4, 17]
Clean Energy Technology	Ecotechnology applications focusing on solar, wind, bioenergy, and geothermal systems.	Renewable Energy	Masters / Doctoral Module	Atlantic International University (AIU)	Evaluation of ecological and social implications of energy projects.	[23, 30]
Urban Water & Waste Management	Sustainable planning, water treatment, and resource recovery infrastructure.	Environmental Engineering	Master's Degree	Not in source	Skills to address population growth and climate change challenges.	[3, 13]
Public Administration Legal Studies	Constitutional law, administrative ethics, and public safety laws in the public sector.	Public Law	Master's Degree	Not in source	Understanding of legal compliance in crisis management.	[3, 13]
Information Management System (IMS)	Modular system for secure registration and biometric validation using Visual Basic.	Software Engineering	Not in source	Not in source	Secure data handling and audit-readiness aligning with national standards.	[33]
Cyber Security Fundamentals	Introduction to cybersecurity elements, attack techniques, and risk	Information Technology	Diploma	Alison	Define key elements of cybersecurity and risk management principles.	[15]

	management.					
Specialist Engineerin g Infrastructure	Advanced power system analysis, high voltage engineering, and smart grids.	Electrical Engineering	Doctorate (PhD)	Atlantic International University (AIU)	Design and management of electrical infrastructure projects.	[5, 13, 16]
SARAO Engineerin g Scholarship s	Scholarship application for Bachelor in Electrical and Electronic Engineering Technology.	Radio Astronomy	Bachelor/Diplo ma	SARAO	Support for MeerKAT and SKA infrastructure.	[18, 19]
Piling Design & Constructio n	Technical specification for driven cast in situ piling projects.	Civil/Struct ural Engineering	Not in source	PWC Town Project Team	500 m/day production rate; compliance with ECSA and ISO 90000.	[8]
Intellectual Property (IP)	Registering inventions and managing IP claims with metadata for digital preservation.	Legal / IP	IP6 / Legal Depot Number	Metropoli tan Police / Elektor	Validating authorship; protection status via legal depot numbers.	[33]
Dementia Care	Training on caregiving skills specifically for dementia and Alzheimer's patients.	Health Science	Certificate	Alison	Define and differentiate forms of dementia and stages of Alzheimer's.	[15]

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Based on 50 sources

Student/Applicant Name	Institution/College	Qualification/Course Title	NQF/ N-Level	Document Type	Evaluation/Application ID	Subject Outcome s (Inferred)	Status/Outcome	Source
Tshingombe Tshitadi Fiston	St Peace College	National N-Diploma: Engineering Studies: Electrical Engineering	N4-N6 / NQF Level 6	Diploma Application Documents / Portfolio of Evidence / Academic	2100002023812 / 90674 / 90643 / 20191130002 / 202001305040	Electrotechnology, Industrial Electronics, Power Machines, Electrical Trade Theory, Advanced Power Distributi	Under Investigation / Pending Evaluation / Awarded	[1-13]

				Transcript		on, System Engineering Process, Technical Drawing, Numerical Operations, and Industrial Automation Control Systems. Mathematics, Informatics, Applied Science, Education Technology, Electrotechnology, Electromechanics, and General Education requirements. Mathematics, Engineering Science, Awarded	
Tshingombe Tshitadi Fiston	SAQA (South African Qualifications Authority)	Foreign Qualification Evaluation (DRC Diplome d'Etat / UNIKIN / ISPT Kinshasa)	NQF Level 4 - 7 (Equivalence claimed)	Foreign Transcript / Certificate / Evaluation Appeal	90674 / 201911130002 / 71638 / Incident #1626485 / Enquiry 9370 / ref: _00D205o40._5004JYEzA3	Non-compliance [1-3, 7, 10, 12-15]	
Tshingombe Tshitadi Fiston	St Peace College	National Certificate: Engineering Studies (Electrical)	N1-N4 / NQF Level 2-4	Academic Transcript / Statement of Results / CHIETA Certificate	2004007064381 / COM182609001 / 67109 / 67375 / 67491	Electrotechnics, Logic Systems, Industrial Electronics, Electrical Infrastruct	[2, 3, 10, 16, 17]

Tshingombe Tshitadi Fiston	Africa Policing Institute / Afric Policing Instituts	National Diploma in Policing (Resolving of Crime) / Applied Policing	N1-N6 / NQF Level 6	Portfoli o of Evidenc e / Assess ment Log / Memor andum	SASSETA 111999691949 / 2023/0508 / 2011007434332	ure, Building Skills, and Control Panel Wiring. Crime preventio n planning, criminal investigati on, vehicle crime, tactical drill, forensic technolog y, and security systems engineerin g. Research methodol ogy, digital curriculu m modeling, human- machine collaborat ion, ethical AGI, digital logic gate verificatio n, and PCB design.	Comple ed assessme nt tasks / Verificat ion of Irregulari ty	[1, 3, 10, 17]
Tshingombe Tshitadi Fiston	Atlantic Internation al University	Master's Level Studies (Artificial General Intelligence / Engineering Design)	Master s / Level 6	Thesis Submis sion / Project Pitch / Acade mic Record	621717 / 00107251 / P- 10307 / tshingombefiston @gmail.com	human- machine collaborat ion, ethical AGI, digital logic gate verificatio n, and PCB design.	Thesis Integrati on Finalized / New	[4, 7, 12]
Tshingombe Tshitadi	Atlantic Internation al	Engineering Studies: Electrical	N- Diplo ma	Appeal stateme nt /	JXL6JWJL2Q73 Z2DE8FP61G / 2100002023812	Manual soldering, electrical	Outcome not meeting	[5, 18, 19]

Fiston	University	Engineering (90674 (Assessment) / t & Appeal) NQF	Transcript exam Not in source	testing, requirem legislative ent / compliance Appeal e, pending instrumen tation calibration, and systems analysis. Electrical Trade Theory, Electrotec hnics, Engineeri ng Science, Mathemat ics, Industrial Orientation, and Plant Operation . Foundatio nal electrical trade theory, installatio n, and technical drawing. Industrial Electronic s, Engineeri ng Drawing, Electrical Trade Theory, and Mathemat
Tshingombe Tshitadi Fiston	Shalom Technical College	Engineering Studies	N3-N4 Admission Permit / 899993812 / Statement of Results	Fail / Collapse due to Irregularity / [1- 3, 16] Results noted for remarkin g
Tshingombe Tshitadi Fiston	SAQA	Electrical Engineering FET Certificate	NQF Level 4 Qualification Record	72052 Registered [4, 5]
Tshingombe Tshitadi Fiston	Afric Training Centre	Engineering Studies	N1, N3, N4 Admission Permit / 2004007064381 / Statement of Results	Fail / Subject to Re- [2, 16] marking

Tshingombe Tshitadi Fiston	St Peace College	Electrical Engineering Infrastructure / Trade Test	NQF Level 4 / N2- N3	QCTO Applica tion / Trade Test Applica tion	202303115021 / COM 18269001	ics. Panel Wiring, Control Logic, Electrical Principles , Workshop Practicum , and Industrial installatio n of AC/DC machines. Vocationa l training integratio n, autodidact ic learning methodol ogy, and trade diagnostic s. Advanced manufactu ring research, energy storage, grid stabilizati on, and AI-driven optimizati on for microgrid s.	Final Verificat ion Meeting Conduct ed / Recomm ended for Trade Test	[1, 10]
Tshingombe Tshitadi Fiston	SAQA / Atlantic Internation al University	Application Trade Discovery: Job Education Research	Not in source	ICorps Executi ve Summa ry	P10438		New Submissi on	[20]
Tshingombe Tshitadi Fiston	National Research Foundatio n (NRF)	SARChI Communitie s of Practice	Postdo ctoral	Grant Applica tion	COP2504113102 45		Applicati on In Progress	[12]
Tshingombe Tshitadi Fiston	St Peace College	Assessor/M oderator Skill	Not in source	ETDP SETA Registr	Ticket ID 35221 / ETDP-AS- 000006376	Plan and conduct assessmen	Resolved / Rejected	[1, 7]

Fiston	Programme	ation / Applica tion	t of learning outcomes, moderation of engineerin g unit standards, and competen cy evaluation	(Missing documen ts)			
Tshingombe Tshitadi Fiston	INPP (DR Congo)	Motorised Petrol Engine (Moteur Essence)	A1/A2 /A3 Equiva lent	Attestat ion Proviso ire	Not in source	Technical pedagogy, electrome chanics, and petrol engine service and maintenan ce. Digital credentiali ng systems and distribute d ledger technolog y applicatio n in education. CPS Integratio n and IoT Laborator y operations . Hazard identificat ion, Successf ully complete	Reussite (Success) [3]
Tshingombe Tshitadi	Blockchai n Academy	DLT Credentialin g Module / Blockchain in Education	NQF Dashb oard Tracke d	Certific ate	2025-10-08	Awarded [20]	
Tshingombe Tshitadi	CPS Institute	CPS Architecture & IoT Lab	NQF Dashb oard Tracke d	Certific ate	2025-10-08	Awarded [20]	
Tshingombe Fiston	Alison	Essentials of Electrical Safety	CPD Certifi ed	Certific ate	5273-37876299	Successf ully complete [21]	

						personal and safety equipment, emergency response, and electrical risk management. Information on security fundamentals and professional ethics. Electrical installation, DB box wiring, switchgear, substation schematics, and AC/DC systems. Innovation in electrical engineering, power factor demand systems, and technology integration.		
Tshingombe Fiston	ISC2	ISC2 Candidate	Professional Certification	Credential Badge	Not in source	Active (Issued 14 Nov 2023)	[5]	
Tshingombe Tshitadi Fiston	Schneider Electric	Engineering Professional Development	CPD	Technical Certification	Not in source	Expired/Backlog	[7]	
Tshingombe Tshitadi	Department of Science and Innovation	Engineering Electrical Project	Not in source	R&D Tax Incentive Notification	9722328238	In-progress	[22]	
Tshingombe	China Criminal	Applied Policing /	Not in source	Work Experie	Not in source	Crime preventio	Task Complet	[23]

Tshitadi Fiston	Police College	Engineering Safety		nce Task Record			n, risk assessment t for industrial environm ents, and health and safety incident managem ent. Consumer Decision Process, Models of Behavior, Attitude Measurem ent, and Personalit y Theories. Electrical engineerin g, energy technologi es, and advanced power managem ent systems. Electronic Practice, Control Panel Wiring, AC/DC Motor Drives, Inverter and UPS maintenan ce.		
Tshingom be Tshitadi	Atlantic Internation al University	Diploma in Applied Psychology – Consumer Behavior	Not in source	Acade mic Transcr ipt	Not in source		Completed [20]		
Tshingom be Engineering	NSF SBIR/STT R	Power Managemen t (PM)	Not in source	Project Pitch	00110596		New (Active Submissi on) [20]		
Tshingom be Tshitadi	SAQA / National Instruction al Media Institute	Electrician 4th Semester	NSQF (LEVEL - 5)	Trade Practica l Manual	2018 Edition		Not in source [24]		
Tshingom	SAQA	Foreign	Not in	Online	INCO000252770	Evaluatio	Referred [25		

be Tshitadi Fiston		Qualificatio n Evaluation	source	Applica tion	5I	n of credential s for Electrical Engineeri ng and Applied Policing. Electrome chanical componen ts, Hydraulic energy systems, circuitry, and material properties .	to Evaluati on Team	]
Tshingom be Tshitadi	St Peace College / Belus	Electrical Trade Theory NI	N1	Vocatio nal curricul um docume ntation	May 2021	Belus	Not in source	[20]
Tshitadi Tshingom be	SAQA (Directorat e: DFQEAS)	Foreign Qualificatio n Evaluation	Not in source	Email Applica tion / Inquiry	20220785055		Recogniti on of foreign undergrad uate engineerin g credits. Math, Physics, Chemistry , Technolo gy Electrical, Technolo gy Mechanic al, Pedagogic al.	Applicati on Received / Outstand ing Docume nts Requeste d [10]
Tshingom be Tshitadi (Fiston)	ISPTKIN	Preparatory	1 Gradua t	Certific at Prepo	Not in	source	Obtained 2007	[16]

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Based on 20 sources

Qualific ation Title	Institu tion or Qualit y Partne r	Technical Field	Key Skills and Deliverables	SAQA or Accreditat ion ID	Estimated Beneficiarie s/Quantity	Assess ment Outco me	Profession al Liability/R egistration (Inferred)	Sou rce
National N Diploma Engineer ing Studies: Electrica l Engineer	DHET / SAQA / St Peace Colleg e/ QCTO	Electrical Engineerin g	Maintenance, soldering, replacement, system design, high voltage installations, renewable energy systems,	90674 / 111285 / 66994	360 Credits	N1-N6 levels / NQF Level 6	Licensed Electrician / Instrument Technician / Candidate Engineering Technologi st	[1- 7]

ing				automation (PLCs), Electrotechnics, and Plant Operation. Requires 18-24 months workplace experience. Mathematics, Engineering Science, Drawing, Electrical Trade Theory, and Industrial Electronics. Covers N1 (basic principles) through N6 (final theoretical level). AI-driven optimization for hybrid renewable microgrids, smart grid storage, electrostatic/electrodynamic systems, and industrial power efficiency. Daily maintenance, repair and installation of electrical systems; diagnose equipment malfunctions;					
National Certificate: Electrical Engineering (N1-N6)	DHET / SAQA / Umalusi / St. Peace College	Electrical Engineering	67109 (N1), 67375 (N2), 67491 (N3), 66881 (N4), 66960 (N5), 67005 (N6)	Not in source			N1-N6 / NQF Level 2-4	Artisan / Technician in Training / Registered Electrician	[2, 3, 5, 7-11]
Master of Science in Electrical Engineering (MSEE)	Atlantic International University (AIU)	Electrical Engineering / Power Systems	Not in source	\$4,000,000 Budget		Master's Degree / Thesis Accepted	Professional Engineer / Research Lead	[1, 3, 4, 9, 10, 12-14]	
Electrician (Shift Worker)	City Power Johannesburg	Electrical Distribution	Bulletin 001/2022 / REF 001	1 per vacancy		Task Grade 9	Requires Electrical Trade Test Certificate and Professional Driver's Permit.	[7, 8, 15]	

			repair LV and MV networks.						[1.3 (p. 5), 2.1 2 (p. 10), 638, 4.1 2.1 1, 1.4, 4.1 2.1]
Dalkeith-Lutz 132kV Cable Project	City Power Johannesburg / Eskom	Power Transmission / High Voltage Engineering	Construction of double circuit 88kV cable supply (200MVA); 2500mm2 Aluminium XLPE cables; directional drilling; fibre optic protection.	Tender No. Dalkeith – Lutz	4800 meters route length	Successful Commissioning	Contractor professional liability insurance of R3m; Registered with Dept of Labour.		
Panel Wiring	St Peace College / QCTO / SAQA	Electrical Infrastructure	Design layout of control cabinet, installation of DB boxes, outlet sockets, switches, and induction motor wiring. Fault find, repair and maintenance of three-phase electrical systems; Install/maintain low voltage distribution boards.	67461 / 263006 / 258937	Not in source	Level 2 / N4 / Competent	Licensed Trade Engineering Status / Technical Assistant		[4, 6-10, 15]
Specialized SAQA-Registered Skills	SAQA / QCTO	Electrical Infrastructure		ID 10259, ID 263006, ID 258937, ID 116466	Not in source	Certified	Licensed Trade Practitioner		[5]
National N Diploma Engineering Studies: Mechanical Engineer	DHET / SAQA	Mechanical Engineering	Design, manufacturing, installation, testing, fault-finding, maintenance of mechanical equipment and fluid power	90674	360 Credits	NQF Level 6	Diesel Mechanic / Boilermaker / Fitter and Turner		[1]

ing			systems.						
Assessor / Moderator	ETDP SETA / SASS ETA / St Peace College	Education and Training	Plan and conduct assessment of learning outcomes; conduct pre- and post-assessment moderation; verify marking consistency.	US ID No: 7978 / Reg. No: 123864	20 students	Accredited Status / Competent	Licensed constituent assessor / Registered with SASSETA.	[2, 15]	
Fibre Optic Cable Installation	City Power / NRS	Telecommunications	Install 48-core non-metallic DUCT fibre cable; Distributed Temperature Sensing (DTS).	NRS 088-1	4800 meters	Splice Loss ≤ 0.1 dB	Telecom Engineer / Accredited Provider	[4.1 3.1, 4.1 3.2]	
Schneider Home Certification	Home and Distribution Academy (Schneider Electric)	Energy Management Systems	Installing and wiring Schneider Inverter, Boost, and Pulse Backup Controller; commissioning with eSetup App.	Course Code: HDAPRD CS0001005	3 NABCEP CEU credits	80% passing score	Certified Installer	[1]	
Modicon PLC Configuration	Schneider Electric	Industrial Automation and Control	Programming and integration of programmable logic controllers for process machine control and variable speed drives.	IEC 17025, 1200 SANS Class 0.2	note/Min processing	Technical Expert	Automation Specialist / Certified Installer	[3]	
Smart Power Metering	Madin da Utilities / City	Urban Energy Management	Rollout of DLMS/COSE M-compliant hardware,	IEC 62056, 2,700 direct IEC 61850 jobs		NQF Level 6	Electrical Systems Technician / Project	[3]	

Module	Power / Eskom		three-phase smart power measurement utilizing GPRS for remote billing data.				Manager	
Electrician (NSQF Level 5)	Indian Vocational Training (ITI) / NIMI	Electrical Trade	Wires, Joints - Soldering - U.G. Cables; Control Panel Wiring, AC/DC Motor Drives, Inverter and UPS, Power Generation. Control panel and motor control; HVAC; welding; implementation of embedded control to real-time algorithms. Implement grid and off-grid electrification; 50-watt Solar Home Systems (SHS); mini-hydroelectrical and thermal generation.	Module No. 3 / NSQF Level 5	10,000 copies / 125 Hrs	Pass	Certified Electrician Trainee	[2, 16, 17]
Mechatronics Level 3	Merset a	Mechatronics / Control Instruments	HVAC; welding; implementation of embedded control to real-time algorithms. Implement grid and off-grid electrification; 50-watt Solar Home Systems (SHS); mini-hydroelectrical and thermal generation.	17-QA/ACC/1311/17	Not in source	Level 3	Accredited Training Provider	[7, 15]
Supply of Electricity to Rural Households	National Skills Fund (NSF)	Renewable Energy / Rural Electrification	Introduction to Data Engineering on Azure; Secure data and manage user in Azure Synapse;	Project Ref: P-09874	10,000 households	Declined	Principal Investigator / System Architect	[9, 10]
Microsoft Certified : Azure Data Engineer	Microsoft	Data Engineering / Cloud Computing	Introduction to Data Engineering on Azure; Secure data and manage user in Azure Synapse;	MCID: 99587175	Not in source	900 Badges / 180 Trophies	Azure Data Engineer Associate	[9, 10]

Diploma in Electrical Studies	Alison	Electrical Engineering	Network security configuration. Basic electrical wiring, safety, circuits, theory, hand bending conduit, raceways, conductors, and cables.	Not in source	10-15 hours	80% - 91% Score	Trainee Electrician	[1, 2, 6, 9, 10]
Official ISC2 Certified in Cybersecurity (CC)	ISC2	Cybersecurity	Security principles, incident response, business continuity, disaster recovery, access controls, network security.	Not in source	CPE Credits	Certification Exam	Cybersecurity Associate	[1]
PSIRA Compliance and Security Policing	PSIRA / SASS ETA / SAPS	Security Policies and Law Enforcement	Regulation and control of security occupation, installation of electronic security systems, and crime management.	PSIRA Act 56 of 2001	30 to 90 days	Grade A, B, C	Registered Security Management Professional	[3]
National Certificate: Policing	SAPS / Metropolitan Police Service	Policing and Security	Radio procedures, evidence gathering, crime scene management, investigation, and traffic enforcement.	248 credits / Vacancy 14783	1 month training	Passed / Pending	Certified Police Officer / Vetted Officer Trainee	[4, 18]
Lifting	Department	Driven	Pre-	Regulation	12:1 Ratio	Compet	Certified	[4]

Machine Operator of Labour	ment	Machinery	operational testing, safety protocol, machine inspection.	18(1)			ent	Machine Operator	
Registered Professional Engineer	ECSA / Home Affairs	Power Management	Engineering designs, software modules, CPD activities.	Not in source	1		Registered	Legally authorized to practice engineering in RSA	[5]
Specialist Engineering Infrastructure and Contractors	Atlanti c International University (AIU)	Electrochemical Engineering	Design, implementation, and management of electrical infrastructure projects; advanced power system analysis; smart grids.	Not in source	Not in source		Doctorate Level	Professional Engineer (Pr.Eng)	[19]
Brevet de Technicien Supérieur (BTS) Électrotechnique	French Higher Education	Electrotechnics	Preliminary study and design of an installation (Étude et conception préliminaire d'une installation).	RNCP4100 7BC01	Not in source		Level 5 Diploma	Certified Electrical Professional (France)	[2, 16]
Postgraduate Diploma in Educational Technology	Council on Higher Education	Education, Training and Development	Emerging technologies, online learning design, digital design for mind brain and education.	Field 05	Not in source		Awarded	Assessor / Moderator / Educator	[4]
Master of Engineering (Electrical)	Beijing Huadian E-commerce	B2B E-commerce / Electric Power	Bidding and non-bidding data fusion, collaborative filtering algorithms, item ranking.	Not in source	217 users		Thesis Project	Senior Data Analyst / Research Engineer	[4]

Applied Policing and Crime Resolution	DHET / NATED / NCV	Law Enforcement	Investigative techniques, crime scene management, evidence handling, legal framework application, forensic investigation.	Not in source	Not in source	Not in source	Investigator / Police Officer	[1]
Robotic Process Automation Engineer	SARB	Robotics / Systems Engineering	Design, test and maintenance of autonomous processes; technical documentation	102	Not in source	Application Outcome	Professional Engineer	[8]
SQA Advanced Certificate in Electrical Engineering	SQA	Electrical Engineering	Power Electronics, Control Systems, Inspection and Testing of Low Voltage Electrical Installations, PLC programming, Cabling methods, installation of electronics equipment, radio transmitter and antenna systems.	SCQF level 7 (GP6D 47)	96 SCQF credits	Not in source	Professional Engineering Technician	[6]
Electronic Skills Programme Installer	SASS ETA / PSIRA	Electronic Security Industry	Child care, communication, humanity resource management, marketing research.	NQF Level 4	Not in source	Competent	Registered Security Service Provider	[4]
Bachelor of Arts	Pearson Institute	Humanities / Marketing Research		ID 62761	Not in source	Honours (NQF Level 8)	Academic qualification (South African NQF)	[18]

Masters in Supply Chain Management	University of Pretoria	Software / Logistics	Design and implementation of traceability systems, supply chain digitalization, blockchain applications.	Not in source	Not in source	Master's Level	Supply Chain Specialist	[13]
Senior Lecturer - Report 191	DHET	Electrical and Civil Engineering	Lecturing Mathematics, Mathematical Literacy, and Engineering subjects.	Post Level PL2	Not in source	Not in source	Registered Educator (SACE)	[17]

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Credential or Project Title	Category	Organization or Platform	Status or Achievement	Reference Identifier	Associated Skills or Technology	Date	Source
Web-Based Crime Management System for Samara City Main Police	Research Article / Preprint	Qeios	Peer-approved / Published	https://doi.org/10.32388/JGU5FH	Computer Science, Information systems, client-server architecture, PHP,	2023-12-11	[1], [2]

Station					MySQL		
National N Diploma: Electrical Engineering	Academic Credential	St Peace College (SAQA/QC TO)	Awarded	SAQA QUAL ID: 66994 / 90674	Electrical Engineering, Mathematics, Industrial Electronics	2024-02-12	[3]
Discover Data Concepts and Implement Solutions with Microsoft Fabric	Professional Development	Microsoft Learn	Completed	MCID: 99587175	Data & AI, Azure, Microsoft Fabric	2024-03-01	[3]
PLC Configuration, EcoStruxure Power, energy modeling and verification	Industrial Certification	Schneider Electric	Completed	607069d9-fa26-423a-9d8c-d810df173a87	Industrial Automation, PLC	2025-12-31	[3]
SASSETA Assessor / Moderator Certificate	Professional Certification	PSiRA / SASSETA	Certified	ID Number: TIRCG00091061010	Assessment and Quality Assurance	2024-12-22	[3]
ISO 37301:2021 Principles of Compliance Management System	Industrial Certification	Alison	Certified (91% Score)	Not in source	Compliance Management	2023-09-15	[4], [3]
Information Management System (IMS): Modular Framework	Project Submission / Prototype	Tshingombe Engineering / Institutional Networks	Inventor / Prototype Complete	Kfrm1-Kfrm6	Visual Basic (VB), Secure registration, biometric validation, credential handling	Not in source	[1]

MIP-630-24-0100-000	Project Submission / IP Registration	Microsoft Forms / Legal	Submitted	MIP-630-24-0100-000	IP, code registration, regulatory	2025-02-14	[1]
I-Corps program application	Project Submission / Grant Application	National Science Foundation (NSF)	Declined	Not in source	Core technology development, Advanced Manufacturing	2025-02-14	[4], [3]
DHET NATED Statement of Results (N3 Level)	Academic Research	DHET	55% (Electro-Technology N3)	Ref: 20191130002	Electrical Engineering	2023-01-01	[4]
SAQA Qualification N4 / Level 5	Academic Credential	SAQA / DHET / QCTO	Recorded	67109	Engineering Electrical, Panel Wiring	Not in source	[1]
Basic Electrical Safety	Professional Certification	Sci-Bono Discovery Centre	Certificate	SAQA/NQF Level 4, WA Code EA2	Electrical Engineering, Wiring Kit	2025-10-08	[4]
Registered Professional Engineer	Industrial Certification	ECSA / Home Affairs	Registered	Not in source	Professional Engineering	2025-10-08	[4]
Cyber Essentials Plus Certification	Industrial Certification	BlockMark Registry	Verified	Not in source	Cybersecurity & Digital Trust	2025-12-13	[4]
IT Asset Management Administrator	Job Application	South African Reserve Bank (SARB)	Active	1165	Compliance automation, asset tracking	2025-02-09	[1]
Applications Design Lead	Job Application	South African Reserve Bank (SARB)	Active	904	Modular systems, VBA frameworks	2025-02-09	[1]
Smart	Project	Schneider	Compliance	GitLab + Azure DevOps	Energy	202	[4]

Panel	Submission	Electric	ce Logged	billing portal	Mgmt Compliance	5- 10- 08	
MBM302 Master Thesis Review	Academi c Research	Atlantic Intl. University	Accepted	IJETR3156	Eng. Systems	202 5- 10- 08	[4]
CI/CD Pipeline Subscription	Project Submissi on	GitHub / Azure DevOps	Active	GitLab audit log	Trailblazer Superbadge – Data Cloud	202 5- 10- 08	[4]
Labour Law Training	Professio nal Credentia ls	SASSETA / CCMA	Complete d	MERSETA + Home Affairs compliance log	Workplace Dispute Resolution	202 5- 10- 08	[4]
Google Classroom Fundament als	Certificat ion	Google Classroom	Completi on	Certificate ID: 2802B71CB4243E14290	Education Technology	202 3- 10- 26	[5]
From Idea to Reality: A Comprehen sive Guide to Setting Up Your Own Company	Continuin g Educatio n	Atlantic Internation al University (AIU)	Certificat e of Participati on	Not in source	Entrepreneu rship	202 3- 10- 13	[3]
Electrical Trade Theory Engineering Nated	Academi c Research	Internet Archive	Archived	Not in source	Electrical Trade Theory	202 3- 09- 09	[4]
Career project implement ation framework design	Project Submissi on	F1000Rese arch	Rejected	Not in source	Curriculum Design	202 5- 04- 11	[3]
Altivar Machine Professional	Industrial Certificat ion Training	Schneider Electric	Active training	Automation & Drives	Drives Basics, Harmonics, EMC, Mounting & Cabling	Not in sour ce	[1]

						(ATV340)		
ASHE Energy Manager	Professional Certification Training	Schneider Electric / ASHE	In Progress	C001		Energy Management, IPMVP, power factor analysis	Not in source	[1]
Sustainability School	Professional Certification Training	Schneider Electric	In Progress	C002		Renewable energy, smart grid	Not in source	[1]
Basic Machines with PacDrive 3	Industrial Technical Test	Schneider Electric	Failed	C003		PacDrive 3, Automation	Not in source	[1]
Copilot Pro	Professional Subscription	Microsoft	Active	Microsoft account		AI companion, productivity	Not in source	[1]
Microsoft 365 Basic	Professional Subscription	Microsoft	Expired	Microsoft account		Premium apps, ad-free email, support	Not in source	[1]
Explore AI basics	Professional Module	Microsoft Learn	Done	AI Fluency		Machine learning, AI types	Not in source	[1]
Introduction to GitHub administration	Professional Module	Microsoft Learn	Done	GitHub Fundamentals		Roles, access control	Not in source	[1]
Introduction to Data Engineering on Azure	Professional Credentials	Microsoft	Certified	Not in source		Azure, Data Engineering	Not in source	[4]
Diploma in Teaching Skills For Educators	Academic Research	Alison	Certified	Not in source		Pedagogy	Not in source	[4]

[1] UserForm 90004444 career totand and trade portoloio.frm1.pdf

[2] UserForm17 police student registrar tshingombe tank „career.frm3.pdf

[3] new career engineering.pdf

[4] new 3career engineering3.pdf

[5] tshingombe tshitadi engineering and education technolog



Based on 50 sources

Project or Item Title	ID or Label Name	Category	Description	Input Type	Source
Azure DevOps Item	1222	Crime Management	Contractor - Associate Investigator General focused on evidence mapping and legal reform.	DevOps Board	[1]
Azure DevOps Boards Engineering Project	4702024FCV001046	Crime Management	Domestic violence case record linked to protection order applications.	Case Item	[2]
Web-Based Crime Management System for Samara City Main Police Station	Not in source	Crime Management	An online application for citizens to report crimes and for police to manage records, database retrieval, and automated reporting.	Web Interface	[1], TRADE THEORY AND PRATICAL TOOLS LAB WORKSHOP MANUFACTURE,,, framework.pdf, UserForm17 police student registrar tshingombe tank „career.frm3.pdf
Azure DevOps Item	1165	Engineering	IT Asset Management Administrator role/task involving compliance automation and asset tracking.	DevOps Board	[1]
Azure DevOps Item	904	Engineering	Applications Design Lead role involving modular	DevOps Board	[1]

			systems architecture and VBA frameworks.			
Azure DevOps Item	1208	Engineering	Associate Resolution Planning Specialist focused on risk-based compliance and systemic reform.	DevOps Board	[1]	
discovery career science technical engineering	86	Engineering	Azure DevOps work item related to discovery in career science and technical engineering.	Azure DevOps Item	[3]	
engineering trade programe	85	Engineering	Azure DevOps work item regarding an engineering trade program.	Azure DevOps Item	[3]	
nrf engineering	84	Engineering	Azure DevOps board work item regarding National Research Foundation engineering project.	Work Item	[3], Work items - Boards azure tshingombe.pdf	
engineering nated nvc excell research tvet	83	Engineering	Work item covering NATED, NVC, Excel research for TVET and engineering standards.	Work Item	[3], Work items - Boards azure tshingombe.pdf	

Engineering Visual Excell MS Word	82	Engineerin g	Azure DevOps board work item regarding engineering documentatio n using Microsoft tools.	Work Item	Work items - Boards azure tshingombe.pdf
engineering visual basic	81	Engineerin g	Azure DevOps board work item regarding Visual Basic software development in engineering.	Azure DevOps Item	[3], Work items - Boards azure tshingombe.pdf
engineering visual basic	80	Engineerin g	Azure DevOps board work item focused on data systems using Visual Basic.	Work Item	Work items - Boards azure tshingombe.pdf
engineering visual basic	79	Engineerin g	Work item focused on Engineering and Visual Basic.	Azure DevOps Item	[3]
engineering data system	74	Engineerin g	Work item for development of engineering data systems.	Azure DevOps Item	[3]
Azure DevOps Boards Engineering Project	1042024CIV0045 39	Engineerin g	A civil law related item identified in the system as screen application status.	Work Item	[2]
Azure	112024CIV00001	Engineerin g	Civil	Work Item	[2]

DevOps Boards Engineering Project	3	g	engineering task or case record within the DOJ tracking system.		
Advanced Studies in Autonomous Vehicles	37.1	Engineering	Engineering principles and technological innovations driving autonomous systems and drones.	Course Topic	[4]
Data Processing and Hosting Services	16.1	Engineering	Advanced concepts in managing vast amounts of data and hosting infrastructure.	Course Topic	[4]
Information Management System (IMS) Prototype	Kfrm1-Kfrm6	Engineering	A modular VB-based form architecture for secure registration, biometric validation, and credential handling.	VB UserForm	[1]
Design and implementation of a modular, form-driven Information Management System (IMS)	Academic Topic 1	Academic Research	Research on secure registration, biometric validation, and credential handling.	Research Paper/Topic	[1], [5]
Curriculum Assessment in Trade & Engineering Education	Academic Topic 2	Academic Research	Report examining integration of career education	Didactic Report	[6], new 2career engineering.2.pdf

			materials, award certificates, and audit-ready documentation.		
Smart Grid & AI-Based Automation	Research Proposal 1	Academic Research	Research on AI-based predictive maintenance in industrial systems and machine learning for power transformers. Developing high-efficiency resonant inductive coupling systems for wireless power transmission.	Research Proposal	[6]
Wireless Technologies	Research Proposal 2	Academic Research	In-depth exploration of blockchain technology and digital currency foundations.	Research Proposal	[6]
Masters in Cryptocurrency and Blockchain Applications	17.1	Academic Research	The Impact of Nanotechnology on Society, Education, and Employment in the Fourth Industrial Revolution.	Course Topic	[4]
Academic Research Topic	Not in source	Academic Research		Expo Category: Social Sciences	[1]
VBA UserForm	Label11	Component	A label component in	Click Event / TextBox10	[1], TRADE THEORY AND

Component			a VBA UserForm triggered by a click event; also used for label number.		PRATICAL TOOLS LAB WORKSHOP MANUFACTURE,,, framework.pdf
VBA UserForm Component	Label16	Component	A label component in a VBA UserForm triggered by a click event; also used for triac.	Click Event / TextBox15	[1], TRADE THEORY AND PRATICAL TOOLS LAB WORKSHOP MANUFACTURE,,, framework.pdf
VBA UserForm Component	Label19	Component	A label component in a VBA UserForm triggered by a click event.	Click Event	[1]
VBA UserForm Component	Label20	Component	A label component in a VBA UserForm triggered by a click event.	Click Event	[1]
VBA UserForm Component	TextBox29	Component	A textbox component in a VBA UserForm that triggers on change.	Text Change	[1]
VBA UserForm Component	TextBox3	Component	A textbox component in a VBA UserForm that triggers on change.	Text Change	[1]
VBA UserForm Component	TextBox9	Component	A textbox used for capturing fault codes such as FDR-TRP and protocols like	Key Down/Press/Mo use	[1]

			IEC61850.			
Kfrm1	Initial registration	Component	Form for initial user registration including name, surname, ID, and cellphone details.	TextBox, Label	[5]	
Kfrm2	Address and birthday capture	Component	Form used for capturing user address and birth date information.	TextBox, Label	[5]	
Kfrm3	Registration confirmation	Component	Form used for confirming the user registration process.	Label	[5]	
Kfrm4	Login	Component	Form for account login and password recovery.	TextBox, Label	[5]	
Kfrm5	Password recovery	Component	Form for resending passwords and saving records.	Label	[5]	
Kfrm6	Biometric validation	Component	Form for security scanning and biometric validation.	Label	[5]	
Student Registration Form	student name	Component	Label for the student name entry on the data entry form.	Label	[4]	
Automated Student Registration Form	frm dataentry	Component	VBA UserForm name for the automated student registration system.	UserForm	[4]	

Simple Calculation in VB	operand 1	Component	Variable defined as a double to hold the first number in calculations.	Variable	[4]
Simple Calculation in VB	txt input	Component	Textbox for user input and result display in the visual basic calculator.	Textbox	[4]
Student Registration Form	txt student name	Component	Input field for capturing student's name on the registration interface.	Textbox	[4]
Requirement Component Tools	Label 2	Component	User interface element labeled for requirement component tools within a VBA form.	TextBox1	TRADE THEORY AND PRATICAL TOOLS LAB WORKSHOP MANUFACTURE,,, framework.pdf
Train Kit	Label 3	Component	User interface element labeled for train kit within a VBA form.	TextBox2	TRADE THEORY AND PRATICAL TOOLS LAB WORKSHOP MANUFACTURE,,, framework.pdf
Material Copper	Label 4	Component	User interface element labeled for material copper within a VBA form.	TextBox3	TRADE THEORY AND PRATICAL TOOLS LAB WORKSHOP MANUFACTURE,,, framework.pdf
Procedure Construction	Label 5	Component	User interface element labeled for construction procedure within a VBA	TextBox4	TRADE THEORY AND PRATICAL TOOLS LAB WORKSHOP MANUFACTURE

Test 1, 2, 3	Label 6	Component	form. User interface element labeled for testing steps within a VBA form.	TextBox5	,,, framework.pdf TRADE THEORY AND PRATICAL TOOLS LAB WORKSHOP MANUFACTURE ,,, framework.pdf
Mounted	Label 7	Component	User interface element labeled for mounted status within a VBA form.	TextBox6	TRADE THEORY AND PRATICAL TOOLS LAB WORKSHOP MANUFACTURE ,,, framework.pdf
Transistor Label Pin Desig	Label 12	Component	User interface element labeled for transistor pin designation within a VBA form.	TextBox11	TRADE THEORY AND PRATICAL TOOLS LAB WORKSHOP MANUFACTURE ,,, framework.pdf
Semi Conductor	Label 13	Component	User interface element labeled for semiconductor within a VBA form.	TextBox12	TRADE THEORY AND PRATICAL TOOLS LAB WORKSHOP MANUFACTURE ,,, framework.pdf
Diode	Label 14	Component	User interface element labeled for diode component within a VBA form.	TextBox13	TRADE THEORY AND PRATICAL TOOLS LAB WORKSHOP MANUFACTURE ,,, framework.pdf
Thyristor	Label 15	Component	User interface element labeled for thyristor within a VBA form.	TextBox14	TRADE THEORY AND PRATICAL TOOLS LAB WORKSHOP MANUFACTURE ,,, framework.pdf
Integer Circuit	Label 17	Component	User interface element	TextBox16	TRADE THEORY AND

			labeled for integrated circuits within a VBA form.		PRATICAL TOOLS LAB WORKSHOP MANUFACTURE,,, framework.pdf
Oscillator	Label 18	Component	User interface element labeled for oscillator component within a VBA form.	TextBox17	TRADE THEORY AND PRATICAL TOOLS LAB WORKSHOP MANUFACTURE,,, framework.pdf

[1] UserForm 90004444 career totand and trade portoloio.frm1.pdf

[2] tshingombe REPUBLIC OF SOUTH AFRICA.docx

[3] Work items - Boards azure.pdf

[4] Doc13 design tshing.docx

[5] UserForm total career outcom 90000333 , completed tota.frm to trade.frm5.pdf

[6] new career engineering.pdf

Based on 11 sources

Learner Name	Qualification Title	Institution	SAQA ID / Asset ID	NQ Level	Credits	Status / Date	ID Number / Identifier	Source
Tshingombe Tshitadi (Fiston)	National Diploma: Engineering Studies	St Peace College / DHET / Sekhukhune TVET College / SAQA	90674 / 09121 / 111285	6	360	Submitted or Pending / 2024-02-12	TIRCG00091061010 / 2004007064381 / 2100002023812	[1-3]
Tshingombe Tshitadi (Fiston)	ECSA Portal Certificate (CPD)	ECSA / Schneider Electric / Microsoft / St Peace College	Not in source	Not in source	Not in source	Date of Award	TIRCG00091061010	[User Descripti on, 4, 5, 6, 2922]
Tshingombe Tshitadi	Assessor and Moderator Certificate : Engineering	St Peace College / PSIRA / SASSET A	111999691949	4	Not in source	Date of Award	TIRCG00091061010	[3-5]

TSHINGOMB EKB TSHITADI	Electrical Diploma in Certified Informati on Systems Security Profession al (CISSP 2024)	Alison	Not in source	Not in sour ce	Not in sourc e	2025- 11-01	Not in source	[3]
TSHINGOMB EKB TSHITADI	Diploma in Safety Engineeri ng	Alison	Not in source	Not in sour ce	Not in sourc e	2025- 12-01	Not in source	[3]
Tshingombe Tshitadi	Engineeri ng Graduate Qualificat ion	Microsoft	Not in source	Not in sour ce	Not in sourc e	2024- 2027	Not in source	[3]
Tshingombe Tshitadi	National 4 Skills for Work: Engineeri ng Skills (SQA)	Scottish Qualificati ons Authority (SQA)	SCQF 7	7	24	Not in source	Not in source	[3]
Tshingombe Tshitadi	Diploma in Applied Psycholog y - Consumer Behavior	Alison	Not in source	Not in sour ce	Not in sourc e	Comple ted	Not in source	[2]
Tshingombe Tshitadi	Diploma in Outcome- based Education and Academic Quality Assurance	Alison	Not in source	Not in sour ce	Not in sourc e	Comple ted	Not in source	[2]
Tshingombe Tshitadi	Advanced Diploma in High School Chemistry	Alison	Not in source	Not in sour ce	Not in sourc e	Comple ted	Not in source	[2]

Tshingombe Tshitadi	N1 Certificate	Not in source	63375	2	40-60	Not in source	Entrance ID 67491	[2]
Tshingombe Tshitadi	Advanced Certificate in Advanced Phase Teaching	Not in source	67q0	Not in sour ce	Not in sourc e	Not in source	Not in source	[2]

- [1] Copilot_20251202_113723.png
[2] careee 30 tshingombe.pdf2.pdf
[3] careee 30 tshingombe.pdf3.docx
[4] Copilot_20251202_113750.png
[5] Copilot_20251202_113757.png



Synthesized Mastery: A Blueprint for Engineering Systems, Education, and Innovation

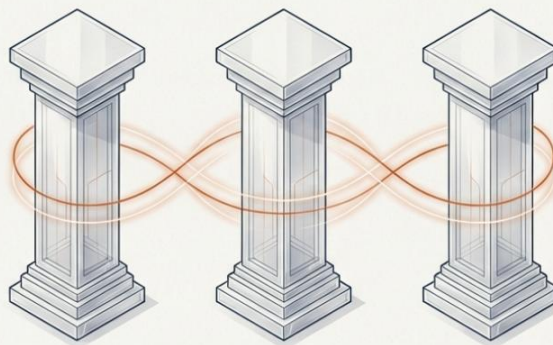
An integrated portfolio demonstrating deep expertise in electrical engineering, large-scale systems implementation, and next-generation technological development.

An Intentional Synthesis of Disciplines

This body of work represents the deliberate integration of three distinct but interconnected domains of mastery:

1. Deep Electrical Engineering

A rigorous foundation in the theoretical and practical principles governing electrical systems.



2. Broad Systems Implementation

The application of core knowledge to design and manage complex socio-technical systems in public and private sectors.

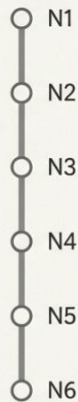
3. Education & Future Systems

A commitment to scaling expertise through education and driving innovation at the frontier of technology.

The Foundation: Mastering the Physics of Electrical Systems

A Rigorous Grounding in Engineering Mathematics and Theory

Academic Progression



Key Theoretical Domains

Advanced Mathematics (N4-N6)

Application of differential and integral calculus, partial fractions, and differential equations to solve complex engineering problems.

Engineering Science (N4)

Mastery of kinematics, dynamics, hydraulics, and stress/strain principles.

Electrotechnics (N4)

In-depth analysis of RLC circuits, DC/AC machines, and network theorems (e.g., Kirchhoff's Laws).



$$\int f(x) dx \quad \frac{dy}{dx} = \frac{(-y)^2}{c}$$



Evidence Panel

- **Qualifications*:** NATED N1-N6 Diploma Track
- **Key Subjects*:** Mathematics N6, Engineering Science N4, Electrotechnics N4
- **Core Concepts*:** Maxwell's Equations, Fourier Transforms, Laplace Transforms, Ohm's Law

NotebookLM

The Foundation: Mastering the Physics of Electrical Systems

Applied Mastery: From Trade Theory to Industrial Electronics

Trade-Specific Knowledge

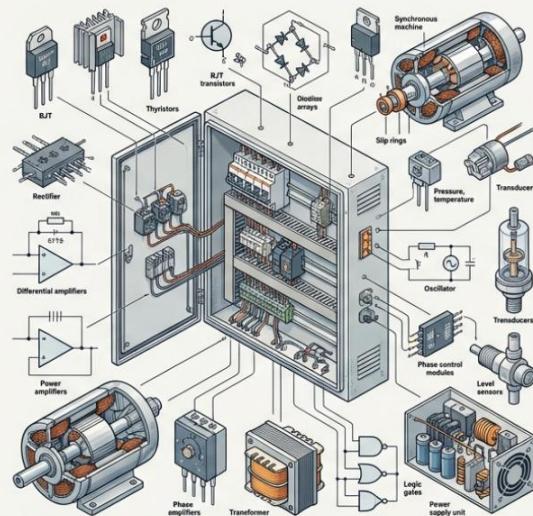
- **Electrical Trade Theory (N3):** Principles of electrical installation, maintenance, safety, circuit design, and troubleshooting techniques.
- **Industrial Electronics (N5):** Expertise in amplifiers (differential, integrator), thyristors, transducers, oscillators, and phase control systems.

Component & System Expertise

- Deep understanding of DC/AC Machines, Transformers, and Power Supplies.
- Knowledge of digital logic systems, including Boolean algebra and logic gates.

Evidence Panel

Key Subjects: Electrical Trade Theory N3, Industrial Electronics N5
Regulatory Standard: SANS 10142-1 (The South African National Standard for the wiring of premises)
Components: Transistors, Rectifiers, Amplifiers, Synchronous Machines, Transducers



NotebookLM

The Application: Engineering Complex Socio-Technical Systems

Designing for Society: Modernizing Public Infrastructure

Traffic Signal Systems

1. Candidate Site Identification & Warranty Study
2. Signal Design (including geometric improvements and land surveys)
3. Installation Supervision & Contractor Management
4. Commissioning & Final Inspection



Power & Metering Systems

- Design of building-mounted metering systems.
- Expertise in lightning protection and soil resistivity measurement.
- Compliance with international standards for electromagnetic compatibility and surge protection.

Evidence Panel

Engagements: City Power, Eskom

Key Standards: IEC 61000-4-5 (EMC Testing), IEC 62053-22 (Electricity Metering), SANS Rules

NotebookLM

The Application: Engineering Complex Socio-Technical Systems

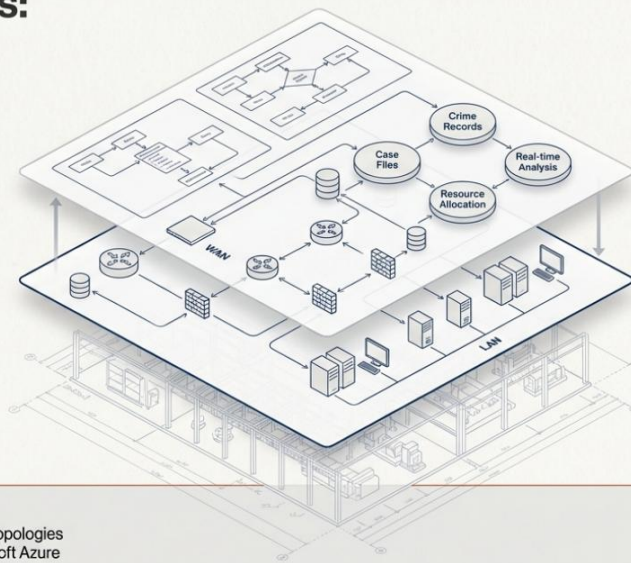
Building Intelligent Systems: From Data Architecture to Industrial Control

Police Management Information Systems

- **Architecture:** Designing systems using Data Flow Diagrams (DFD) and Entity-Relation (ER) diagrams to manage crime records, case files, and resource allocation.
- **Networking:** Implementing secure Wide Area Network (WAN) and Local Area Network (LAN) topologies.
- **Objective:** To enhance e-government capabilities, improve public safety, and enable real-time crime data analysis.

Industrial Automation & Control

- Completed training and configuration of Schneider Electric systems, including EcoStruxure Power, Modicon M340 processors, and motor starters (variable speed drives).
- Knowledge of Eaton's power system products and field service engineering principles.



Evidence Panel

Concepts: Data Flow Diagrams, Entity-Relation Diagrams, WAN/LAN Topologies

Technologies: Schneider Electric EcoStruxure, Modicon M340, Microsoft Azure

Projects: E-Police System Design, Motor Control Configuration

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The Multiplier: Scaling Expertise Through Education & Mentorship

A Portfolio of Continuous Professional Development



MCID: 99587175

Credentials: Level 18,
1,225,400+ XP

Completed Training:
Introduction to Data
Engineering on Azure;
Configure Network
Security; Perform Device
Investigation in Microsoft
Defender.



Completed Training:

EcoStruxure Power: Energy
Modeling & Verification

Drives Fundamentals of
Kinematic Calculation

Physical Infrastructure
Management Basics

Heating, Ventilation, and
Airborne Disease Transmission



ISC²: Certified in Cybersecurity

BrightTalk: Certificates of
Attendance in "Next Generation
of SASE," "Generative AI and
Enterprise IT," "Inside the Mind
of a Hacker."

Alison: Numerous certificates
in Electrical Engineering topics,
including Transformer
Components and Basics of
Electrical Technology.

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The Vision: Innovating at the Intersection of Engineering and Intelligence

Forward Trajectory: A Doctoral Focus on Next-Generation Systems

Proposed Doctoral Research

Primary Fields: A synergistic focus on Power Systems, Control Systems, Telecommunication, and Embedded Systems.

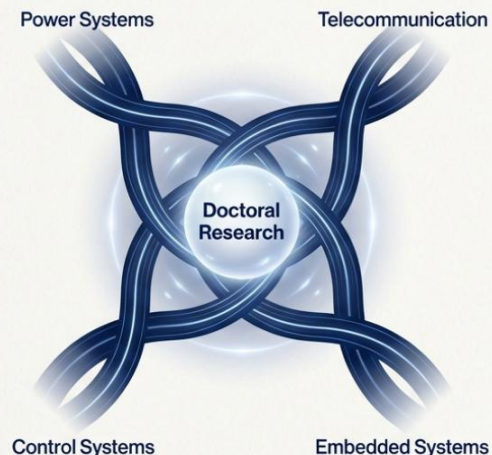
Research Goal: "To contribute new knowledge or solutions to existing challenges in the electrical and electronics field."

Institutional Engagement

Actively pursuing a Master's / Doctoral degree through Atlantic International University (AIU), an institution emphasizing customized, andragogic (self-directed) curriculum design.

Advanced Coursework

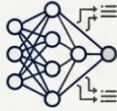
- Advanced Electromagnetic Theory
- Digital Signal Processing
- Control Systems Design
- VLSI (Very Large Scale Integration) Design



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The Vision: Innovating at the Intersection of Engineering and Intelligence

Mastering the Digital Frontier: AI, Cybersecurity, and Advanced Architectures



Artificial Intelligence & Machine Learning

Studied applications of ML in Electrical Engineering, including optimization of energy efficiency, modulation, and signal processing. Explored AI-powered systems for e-commerce, product recommendations (collaborative filtering), and generative AI for enterprise IT.



Cybersecurity & Information Assurance

Formal certification from ISC2 (Certified in Cybersecurity). Explored advanced topics such as Ethical Hacking, Penetration Testing, quantum cryptography, and zero-trust security models.



Advanced System Architectures

Studied the application of Distributed-Ledger Technologies (DLT/Blockchain) in educational technology for secure credentialing. Analyzed Cyber-Physical Systems (CPS) in telecommunications and smart grids. Researched the role of IoT and Robotic Process Automation (RPA) in creating smart supply chains and electrical systems.

Evidence Panel

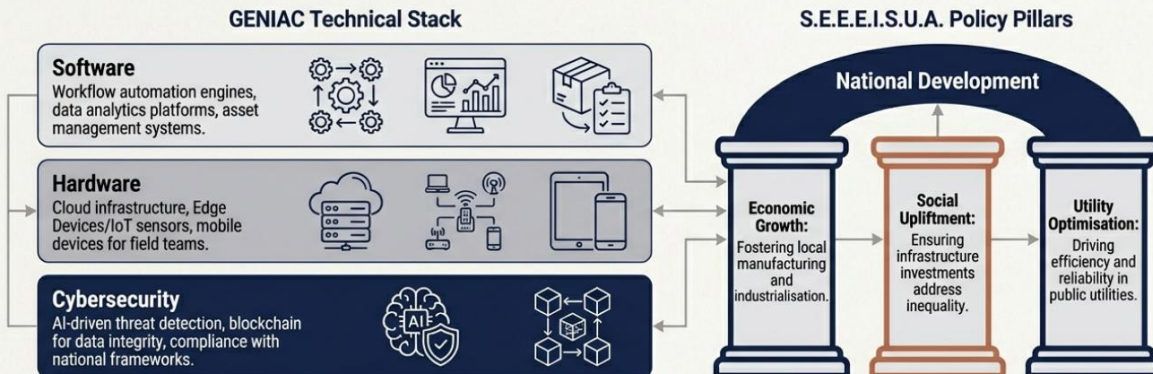
Concepts: Machine Learning, DLT/Blockchain, Cyber-Physical Systems, IoT, Zero-Trust Models

Certifications: ISC2 Certified in Cybersecurity

📄 NotebookLM

A Strategic Proposal: Operation GENIAC & S.E.E.E.I.S.U.A. Integration

A proposal for a fully integrated, automated national system for Governance, Engineering, National Infrastructure, Asset Control (GENIAC) and its policy framework, the Synthesized Economic, Engineering, Educational, Industrial, and Social Upliftment Architecture (S.E.E.E.I.S.U.A.).



Initial Application: The Madinda Utilities Advanced Metering Infrastructure (AMI) Rollout, showcasing remote configuration, RFID asset tagging, and high-level security (IEC 62056-5-3).

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The Synthesized Expert: A Blueprint for Impact

The journey from NATED qualifications to designing national automation frameworks is not a random collection of skills, but a **story of intentional synthesis**. This portfolio demonstrates a unique capability to bridge deep engineering principles with complex societal needs.

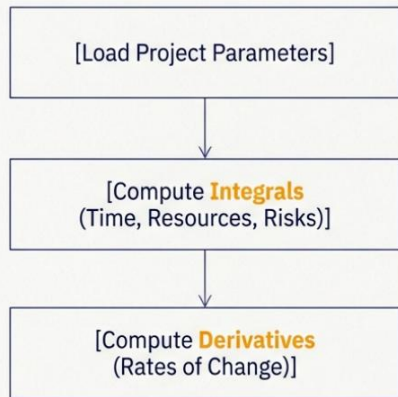


Ready to design, implement, and lead complex socio-technical projects that generate lasting value.

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The Applied Engine: From Theory to Measurable Application

The Applied Engine translates didactic learning into practical, measurable outcomes. It provides tools for project planning, resource management, and cost projection, ensuring every application of knowledge is tracked and quantified.



Project Planning

$$\text{Total Time: } T = \int_0^N t_i di$$

Resource Management

$$\text{Total Consumption: } R = \int_0^T r(t) dt$$

Cost Projection

$$\text{Total Cost: } C_{\text{total}} = \sum (M_{\text{material}} + H_{\text{human}} + S_{\text{stationery}} + B_{\text{building}})$$

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The Engine's Source Code: Verifiable Logic in Visual Basic

The system's backend is built on robust, auditable code. These VBA modules automate calculations for everything from renewable energy harvesting to project cost estimation, creating a verifiable record of applied knowledge.

Renewable Energy & Smart Grid Functions

```
' Renewable Energy: Wind Harvest
Function WindEnergyHarvest(rho, A, v, eta, duration) As Double
    WindEnergyHarvest = 0.5 * rho * A * (v ^ 3) * eta * duration
End Function

' Solar Efficiency
Function SolarEfficiency(Egenerated, Eincident) As Double
    ...
End Function
```

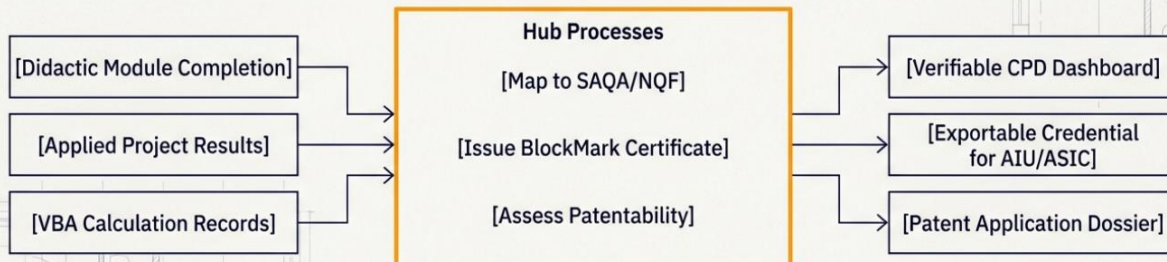
Project Cost Estimation Logic

```
' Estimate Total Project Cost
...
"Human Resource:" & FormatCurrency(entry.HumanResourceCost)
"Material:" & FormatCurrency(entry.MaterialCost)
"Building / Infrastructure:" & FormatCurrency(entry.BuildingCost)
"Total Cost:" & FormatCurrency(EstimateTotalProjectCost(...))
```

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The Credentialing & IP Hub: Verifying Mastery and Ownership

All structured learning and applied work culminates in the Credentialing & IP Hub. This pillar formalizes achievement through interoperable digital certificates, maps competencies to national qualification frameworks, and provides a structured process for managing intellectual property.



Bilingual & Legacy Ready

The system generates a bilingual (English/French) career portfolio and legacy-ready export formats.

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The Mechanics of Verification: Blockchain-Ready Credentials

The system integrates with third-party services like BlockMark Technologies to issue secure, verifiable digital certificates. This process supports both expiring (e.g., annual CPD) and non-expiring credentials, with options for premium blockchain features.

BlockMark Certificate Issuance Price List (VAT Excl.)

Item	Price (credits)	Paid for by
Issue a certificate with an expiry date	£1 (100) per year	Issuer
Issue a non-expiring certificate	£10 (1000)	Issuer
Issue a CPD folder with a certificate	£1 (100) per year	Issuer
Stamp a hash of an issued certificate on blockchain	£1 (100)*	Issuer

*Coming soon (currently beta-testing with no charge)

NotebookLM

From Research to Asset: A Structured Path to Patentability.

Beyond credentials, the hub manages the lifecycle of intellectual property. It aligns with international patent standards, tracking research methodology and assessing inventions against key criteria to create an audit-ready trail for patent applications.

Patentability Criteria

-  1. **Novelty:** Not publicly disclosed before filing.
-  2. **Utility:** Must function and serve a useful purpose.
-  3. **Inventive Step:** Not obvious to a skilled professional in the field.

Reference: 'URFIST Paris' patent tutorials and 'Espacenet' database for prior art searches.

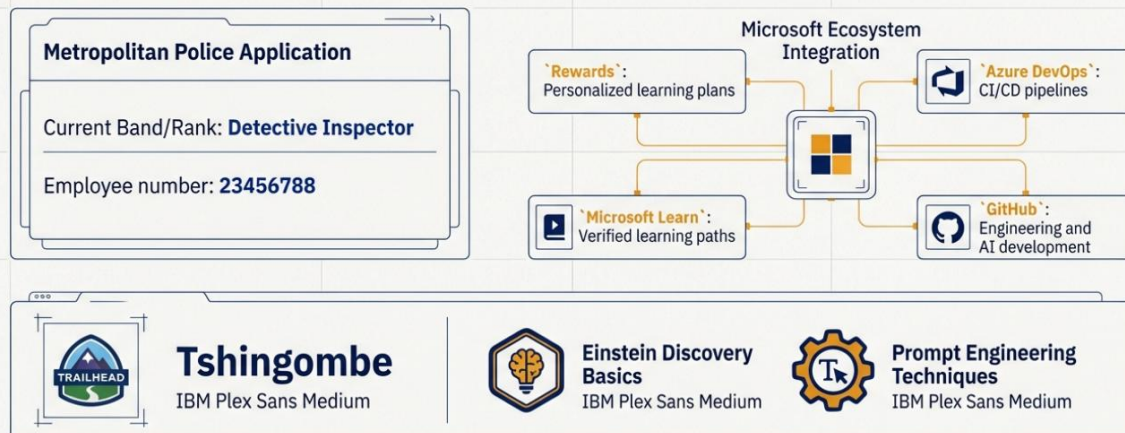
VBA Logic for Patent Tracking

```
' Module: Research and Patent Lifecycle Tracker
Type ResearchPatentProject
  ProjectID As String
  ScopeDefined As Boolean
  MethodologySet As Boolean
  PatentNovelty As Boolean
  PatentUtility As Boolean
  PatentInventiveStep As Boolean
  PatentFiled As Boolean
  CertificationStatus As String
End Type
```

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The Professional's Journey: Tshingombe's Integrated Career Engine.

The system is designed to be a lifelong career co-pilot. For a professional like **Tshingombe**, it integrates disparate platforms into a single, credential-linked engine, supporting everything from job applications to advanced engineering certifications.



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Mapping to National Standards: The SAQA NQF Level 3 Electrical Engineering Certificate.

The platform's data model is designed to align with rigorous national qualification frameworks, such as the South African Qualifications Authority (SAQA). It maps every learning activity and competency to specific unit standards, ensuring full compliance and auditability.

SAQA ID 63790: National Certificate: Electrical Engineering (NQF Level 3, 133 Credits)			
Component	Unit Standard ID	Title	Credits
Core	258963	Install, test and maintain electrical equipment in a hazardous location	10
Core	113924	Install and commission DC and AC machines and control gear	10
Fundamental	119472	Accommodate audience and context needs in oral/signed communication	5
Elective	259097	Carry out a detailed inspection and repair defects on explosion prevention apparatus	6

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International Application: The French Brevet de Technicien Supérieur (BTS) in Electrotechnics

The system's architecture is adaptable to diverse international standards, including European vocational qualifications. It breaks down complex roles into a granular set of professional activities and certified competencies.

Professional Activities

- Étude - Conception préliminaire *Preliminary study & design*
- Conception - étude détaillée du projet *Detailed project design*
- Analyse – diagnostic *Analysis – diagnostic*
- Maintenance d'une installation électrique *Maintenance of an electrical installation*
- Conduite de projet/chantier *Project management*
- Réalisation : installation – intégration *Realization: installation – integration*
- Mise en service *Commissioning*
- Communication *Communication*

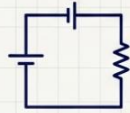
Certified Competencies

- Modéliser le comportement de tout ou partie d'un ouvrage *Model system behavior*
- Dimensionner les constituants *Dimension components*
- Proposer l'architecture d'un ouvrage *Propose system architecture*
- Gérer et conduire le projet/chantier *Manage the project*
- Réaliser un diagnostic de performance *Perform a diagnostic*

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Bridging Didactics and Practice: The UniTrain-I and InsTrain Simulation Environment

The system integrates with hands-on training platforms like the Lucas-Nülle UniTrain and InsTrain systems. Practical skills—from fault simulation in building automation to diagnostics on three-phase systems—are logged, evaluated, and certified.



DC Technology



AC Technology



Three-Phase Technology



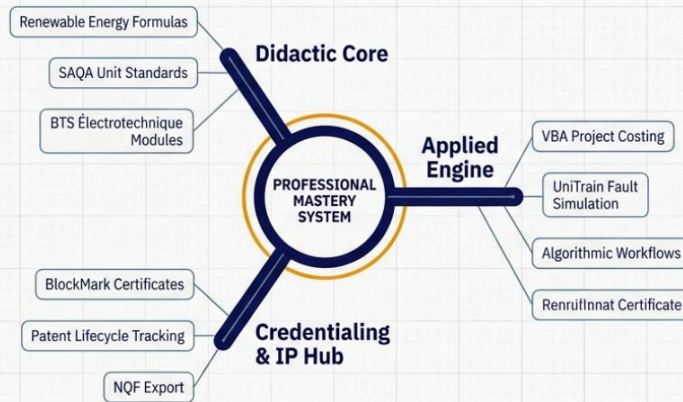
KNX® Building Automation

```
' Module: UniTrainICredentialTracker
' Purpose: Automate training progress, fault simulation, and credentialing

Type UniTrainTrainee
  Name As String
  CourseCode As String
  DC_Module As Boolean
  AC_Module As Boolean
  ThreePhase_Module As Boolean
  FaultsResolved As Integer
  TotalFaults As Integer
  CertificationStatus As String
End Type
```

A Complete System of Systems for Professional Mastery

By integrating the Didactic Core, Applied Engine, and Credentialing Hub, the platform creates a closed-loop system for continuous development. Every skill learned is applied, every application is measured, and every achievement is verifiably certified.



Key Value Propositions

- **Audit-Grade Traceability:** From lesson plan to final credential.
- **Integrated Learning:** Seamlessly connecting theory, simulation, and practice.
- **Verifiable Credentials:** Portable, secure, and mapped to global standards.
- **Lifelong Portfolio Management:** A dynamic record of career achievement and innovation.

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The Professional's Lifelong Ledger

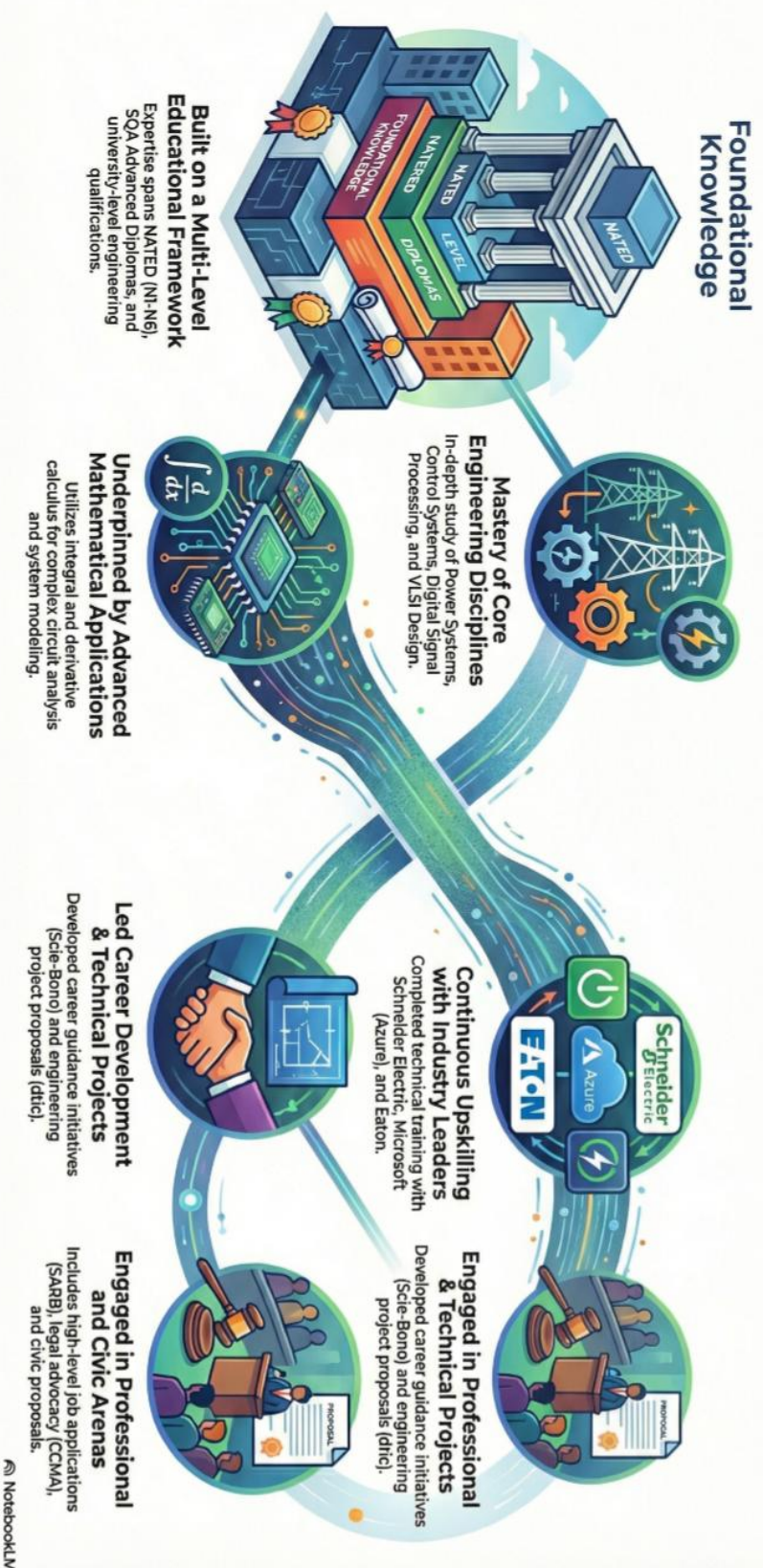
This is more than a system; it is a permanent, dynamic, and verifiable record of an individual's accumulated knowledge, practical skill, and innovative contributions. It is the definitive ledger of human potential, realized and proven.



Building the architecture for proven expertise.

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The Modern Engineer's Journey: From Theory to Practice



Technical Depth: The Mathematics of Renewable Energy.

Each module is built upon fundamental scientific and engineering principles. The curriculum integrates the core mathematical models required for professional practice, ensuring a deep and quantifiable understanding of the subject matter.

Wind Energy - Integral Calculations

Total Power Output

$$P_{\text{total}} = \int_0^T P(t) dt$$

Energy Harvested

$$E = \int_0^T \frac{1}{2} \rho A v^3 \eta dt$$

ρ = Air Density
 η = Efficiency

Solar Energy - Integral Calculations

Total Energy Generated

$$E_{\text{total}} = \int_0^T P(t) dt$$

Social Media Marketing (Cross-disciplinary application)

Total Engagement

$$E_{\text{total}} = \int_0^T E(t) dt$$

Demonstrates the extensibility of the mathematical model to non-engineering domains.

The Code-Driven Credential Engine: Automating Technical Education with Visual Basic

FRAMEWORK & CURRICULUM AUTOMATION

Map National Standards
to Course Modules



Automate Assessment
& Moderation Plans

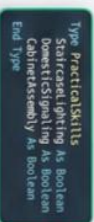


Simulate Real-World
Technical Systems

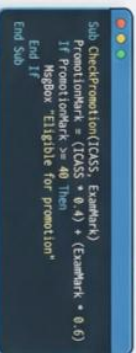


LEARNER COMPETENCY & CREDENTIAL TRACKING

Track Hands-On
Skill Completion



Evaluate Performance
& Promotion Readiness



Generate Audit-Ready
Credential Reports



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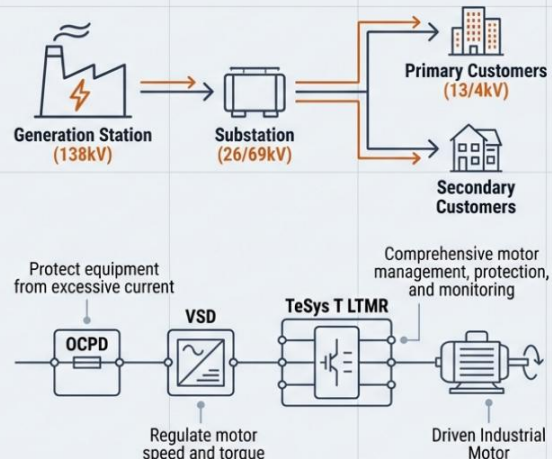
Convergence & Resilience: A Profile in Systems Engineering and Applied Problem Solving

An integrated approach to solving complex challenges at the intersection of electrical engineering, software development, and systems analysis.

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Mastering Electrical Power Systems from Generation to Industrial Application

- **Power Distribution Architecture:** Designing and analyzing systems from generation stations (138kV) through substations (26kV, 69kV) to primary (13kV, 4kV) and secondary customers.
- **Industrial Motor Control:** Implementation and configuration of motor management controllers (e.g., TeSys T LTMR), including wiring diagrams, parameter setting, and safety considerations (OCPD, VSD).
- **PV Installation Design:** System planning for photovoltaic installations ranging from 6.5kW to 250kW grid-tied systems.
- **Component & System Schematics:** Creating detailed electrical engineering diagrams for circuits, logic, and industrial controls.



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Applying Software to Automate and Solve Complex Operational Problems

Automated Student Registration System (Excel/VBA)

A database-driven system in Excel and VBA for managing student registrations.

- UserForm for data entry (frm dataentry), validation checks (Function ValidEntry()), data submission to a database sheet, and form reset capabilities (Sub Reset_Form()).

Student Registration Form

Student Name

Father Name

Date of Birth

Course Applied

Course Name

Project Number

Others

Validation Snippet (VBA)

```
Function ValidEntry() As Boolean
    ValidEntry = True
    If Trim(.txtStudentName.Value) = "" Then
        MsgBox "Please enter Student's name."
        .txtStudentName.BackColor = vbRed
        ValidEntry = False
    End If
    Exit Function
End Function
```

Functional Calculator Application (Visual Basic)

A calculator built in Visual Basic to demonstrate UI design and event-driven programming.

- Interface with text fields and buttons. Logic handles mathematical operations using Select case [operator] and variable declarations (Dim operand1 as double).

Calculator UI with buttons: C, /, =, +, 7, 8, 9, -, 4, 5, 6, *, 1, 2, 3, =, 0, ., =

Core Logic (Visual Basic)

```
Select Case [operator]
    Case "+"
        Result = operand1 + operand2
        txtinput.text = Result.ToString
    Case "*"
        Result = operand1 * operand2
        txtinput.text = Result.ToString
End Select
```

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Bridging Hardware and Software Through Industrial PLC Communication

Command string:

- **Project Focus:** PLC Communication Programme for Data Read/Write Operations (C#).
- **Core Functionality:** Establishes a connection to a PLC via IP address, then constructs and sends specific command strings to read or write data to PLC memory addresses.



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Case Study: The Three-Phase Smart Meter

A comprehensive project demonstrating the convergence of embedded systems hardware, firmware architecture, and electrical theory.

Project Overview

- A four-quadrant, three-phase AC static watt-hour smart meter designed for low-power, real-time operation.
- Integrates metering algorithms, data processing, multiple communication interfaces, and tamper detection features.

Key Project Components



Hardware Design



Software & Firmware



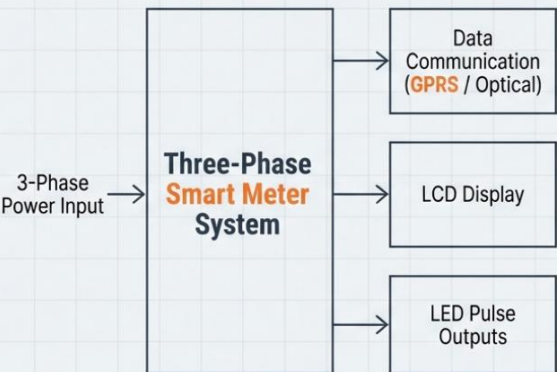
Metering Theory



Bill of Materials



Performance & Accuracy



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Grounded in Fundamental Electrical Theory and Built to Precise Specifications

Core Metering Principles

Active Energy: $W_H = \int u(t) \cdot i(t) dt$

Reactive Energy: $varh = \int u(t-90^\circ) \cdot i(t) dt$

Active Power: $P = \frac{1}{T} \int u(t) \cdot i(t) dt$

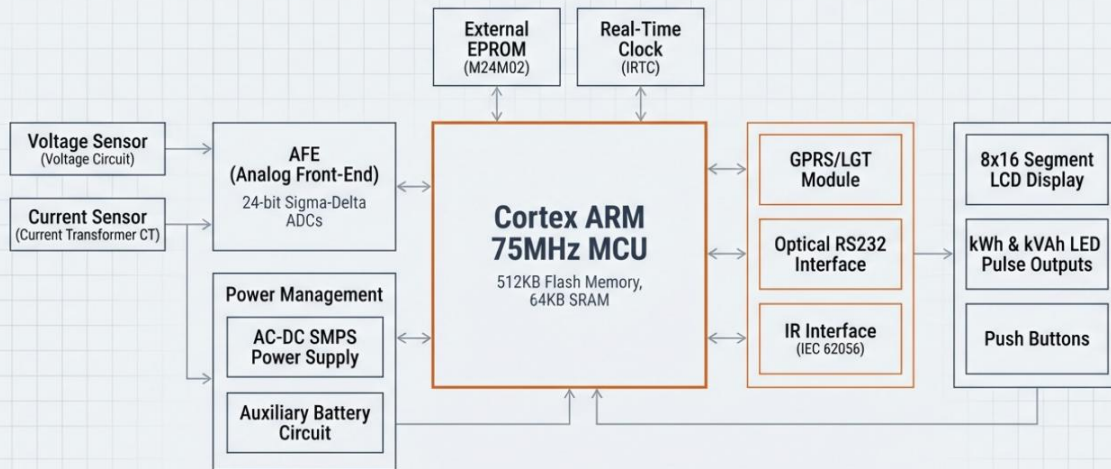
Apparent Power: $S = I_{RMS} \cdot U_{RMS}$
 $S = \sqrt{P^2 + Q^2}$

Key Technical Specifications

Type	Three-Phase AC Static Watt-Hour Smart Meter
Accuracy	Class 0.5 (0.5%)
Nominal Voltage	240 VAC (+20%)
Current Range	0-60A (10A nominal, 72A dynamic range)
Frequency	50Hz (±5%)
Communication	GPRS Module (1x SIM card) & IEC 62056 Infrared Interface
Data Memory	256kb External EPROM (M24M02)
Functionality	Measures V, A, kW, kVAR, VA, kWh (import/export), kVAh (import/export)

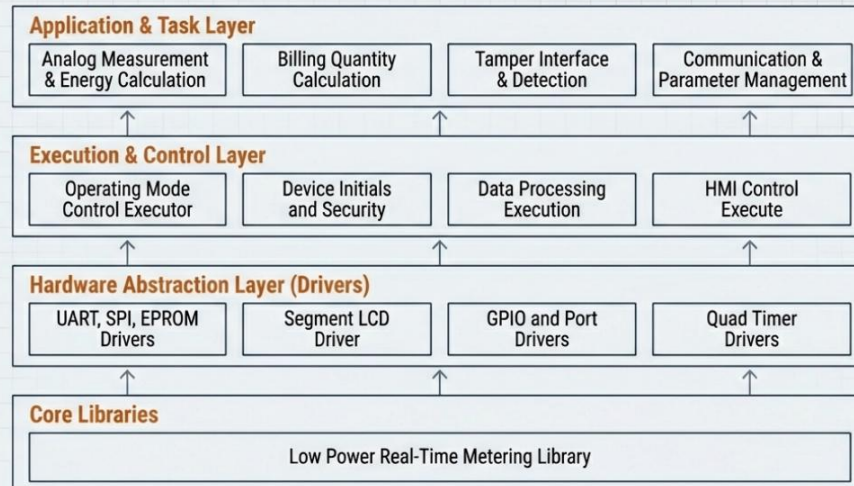
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Designing the Smart Meter: A Detailed Hardware & Component Architecture



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Engineering the Intelligence: A Multi-Layered Firmware Architecture



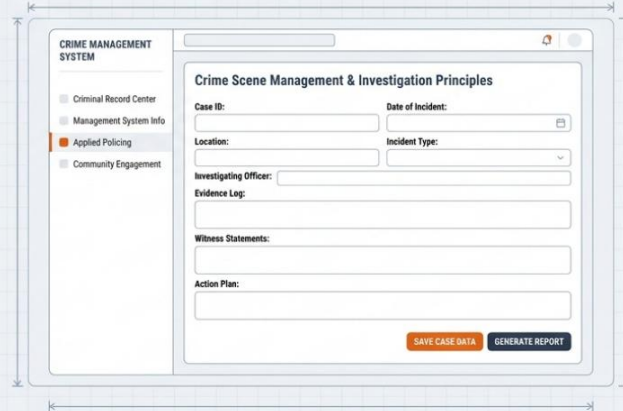
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Applying Systems-Thinking to Public Safety and Crime Management

Project Concept: A Web-Based Crime Management System for Police Operations.

System Modules

-  **Criminal Record Center:** Centralized database for criminal records.
-  **Management System Information:** Tools for operational analysis and reporting.
-  **Applied Policing & Crime Resolution:** Modules for case management and investigation principles.
-  **Community Policing & Engagement:** Features to facilitate communication and information sharing with citizens.
-  **Experimental Applications:**
 - Simulate crime data entry and analysis.
 - Develop crime heatmaps to identify hotspots and allocate patrols effectively.



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Demonstrating Tenacity Through Direct Engagement with Complex Legal and Administrative Systems

A Record of Formal System Navigation: This dossier presents a history of engaging with various governmental and judicial bodies to address professional and administrative disputes.

Case Context: Filings relate to issues including workplace violence, educational backlogs, work permit conditions, and enforcement of CCMA awards.

High Court of South Africa

- Appellant in Appeal Case Numbers **Ja 37/19** and **Ja 2461/15**.

Department of Justice (DOJ) Online Portals

- Multiple Protection Order applications (e.g., **URN 4702024FCV001046**) related to workplace disputes.
- Numerous Civil Law filings (e.g., URNs **1042024CIV004539**, **112024CIV000013**, etc.).

Commission for Conciliation, Mediation and Arbitration (CCMA)

- Engaged in multiple proceedings, including review applications and rescission rulings.

Other Engaged Bodies

- Department of Labour
- Department of Higher Education
- **SAQA** (South African Qualifications Authority)
- **PSIRA** (Private Security Industry Regulatory Authority)

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Meticulous Documentation and Process Adherence in Formal Proceedings

Demonstrating a Systematic Approach: The same structured and detail-oriented methodology used in engineering is applied to navigating legal and administrative processes.

Exhibit A: Court Filing Index

Case Ja 37/19

- Notice of motion
- Affidavit in support of application
- Recording transcription
- Application for leave to appeal head argument
- Proof of service

Highlighting the structured, evidence-based nature of legal submissions.

Exhibit B: Formal Application Process

**SOUTH AFRICAN POLICE SERVICE
APPLICATION FOR APPOINTMENT**

Personal Particulars

Name:
ID Number:
Predecessment Number:
Company name:

Age:
ID Name: etc:

Career History

Have you ever been found guilty in a disciplinary matter? ☒ YES

Demonstrating compliance with rigorous bureaucratic disclosure requirements.

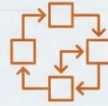
A Unique Convergence of Deep Technical Expertise and Proven Resilience

An engineer who not only designs and builds complex electro-mechanical and software systems but also possesses the demonstrated fortitude to analyze, navigate, and resolve challenges within complex human systems.

Key Capabilities



1. Foundational Engineering: Deep expertise in electrical power, industrial controls, and electronics.



3. Integrated Systems Design: Proven ability to architect a complete embedded system, from theoretical concept to hardware and firmware, as shown in the Smart Meter case study.



2. Applied Software Development: Versatility in creating practical applications (VBA, VB.NET) and industrial communication protocols (PLC).



4. Systemic Resilience: A documented history of methodical, persistent, and direct engagement with legal, administrative, and regulatory frameworks.



UNDERSTANDING PROTECTION ORDERS IN SOUTH AFRICA: YOUR LEGAL PATH TO SAFETY

WHICH PROTECTION ORDER DO YOU NEED?

Domestic Violence Protection Order (DPO)		Harassment Protection Order (HPO)	
 For abuse from someone you have a domestic relationship with (e.g., family, partner, roommate).		 For abuse from someone you are not in a domestic relationship with (e.g., a neighbor).	
RELATIONSHIP REQUIRED?	Yes, a domestic relationship is required.	RELATIONSHIP REQUIRED?	No relationship is required.
PATTERN OF ABUSE?	Requires a pattern of abusive actions.	PATTERN OF ABUSE?	A single incident can be sufficient.
EXAMPLES:	Physical, sexual, financial, emotional abuse.	EXAMPLES:	Unwanted messages, stalking, financial harm.
			

THE PROCESS TO GET A PROTECTION ORDER

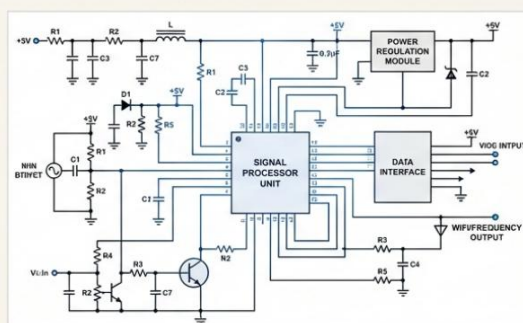


The Labyrinth: Navigating and Reforming South Africa's TVET Landscape

A Practitioner's Case for an Integrated Electrical Engineering Qualification Framework

When the system is flawed, expertise is forged in navigating its complexities. This is the story of that navigation—and the blueprint for a better way forward.

A Paradox of Prolific Work and Systemic Hurdles



This dossier chronicles the extensive work of Tshingombe Tshitadi Fiston, an engineer and educator whose journey reveals a critical disconnect. While formal systems presented barriers and rejections, a substantial body of innovative work in electrical engineering, curriculum design, and applied research was consistently produced. This is the evidence of that work.

Diagnosing a System Marked by Friction and Delay

The Technical and Vocational Education and Training (TVET) system for engineering studies is characterized by systemic irregularities that create significant barriers for learners and lecturers.



Qualification Irregularities

"Nated ncw combination irregularity," non-accredited qualifications, and challenges in recognizing foreign qualifications (SAQA).



Administrative Backlogs

"Slow to challenge factor learning and release resultat printed statement," "marking in progress," and extensive delays in issuing diplomas and certificates from DHET.



Curriculum Misalignment

A gap between theoretical knowledge ("trade theory") and practical, industry-relevant skills required by employers like Eskom and City Power.



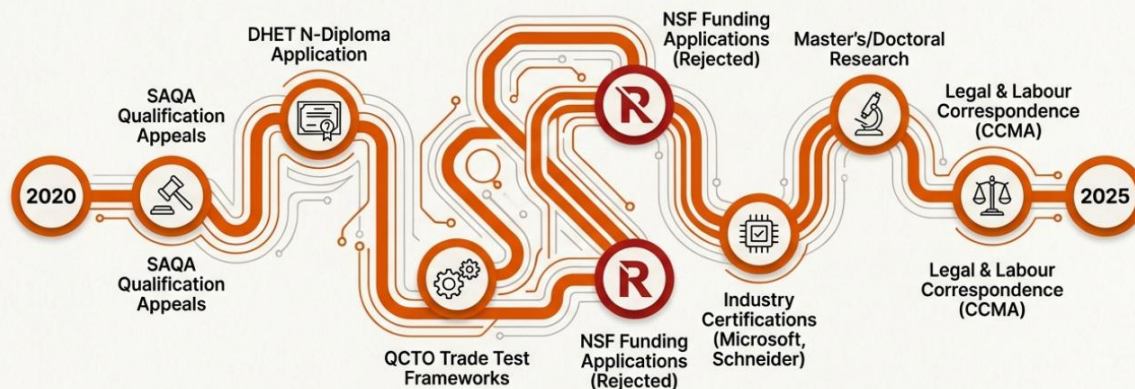
Assessment Inconsistencies

"Non credible process," "irregularite material script," and a lack of standardized, fair assessment policies for Portfolios of Evidence (PoE).

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One Practitioner's Journey Through the Labyrinth

This presentation uses a multi-year case study of navigating the TVET system to diagnose its core challenges and propose a robust, integrated solution. The evidence presented is a direct result of this journey.

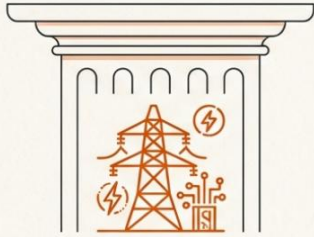


"The author is not just talking about the problem; he is the evidence."

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Forging Multidisciplinary Expertise Through Adversity

Navigating the labyrinth of qualifications, funding, and curriculum gaps required the development of a comprehensive skill set far beyond traditional engineering.



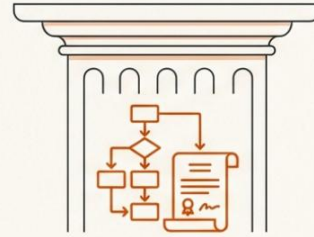
Advanced Engineering & Power Systems

Deepening the core technical domain, with a focus on rural energy, smart grids, and industrial automation.



Digital Systems & Educational Technology

Mastering the digital tools necessary to build modern learning solutions and streamline broken administrative processes.



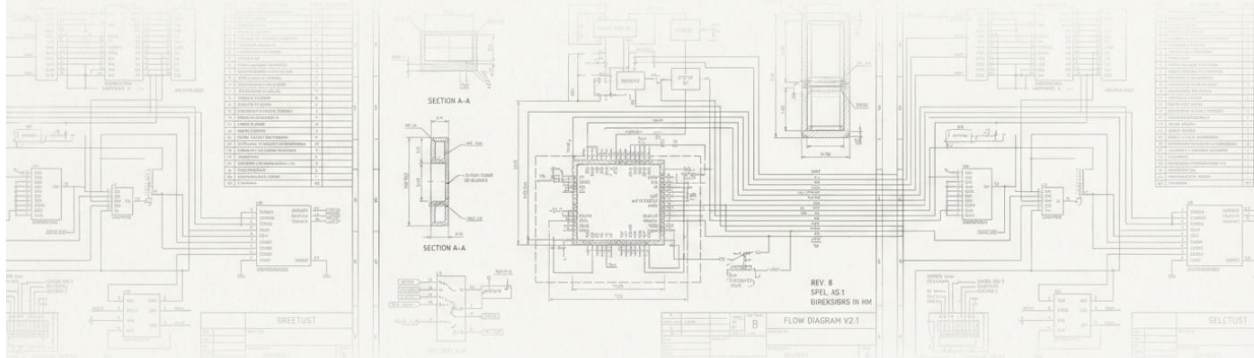
Policy, Pedagogy & Framework Design

Undertaking formal research into the very systems of education, assessment, and qualification that created the initial obstacles.

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The Audit-Grade Career Engine

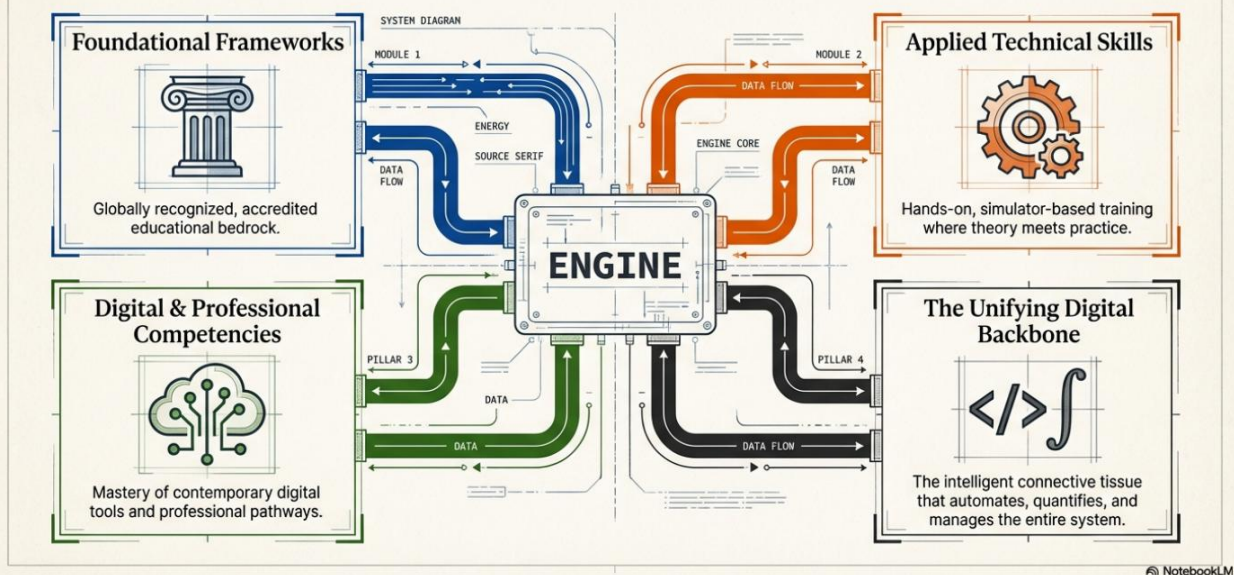
A Blueprint for Verifiable Competence



A modular framework that synthesizes formal education, vocational training, and workplace experience into a single, auditable system.

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The Four Pillars of the Career Engine



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Building on a Bedrock of Global Academic and Technical Standards

Foundational Frameworks (Pillar 1)

South African Qualifications Authority (SAQA)

Qualification	National Certificate: Electrical Engineering (ID 72071)
Unit Standard ID	259037
Title	Design and install electrical wire ways
Level	NQF Level 3
Credits	8

French Higher Education

BTS Électrotechnique - Compétency Block

RNCP41007BC01 (in Source Code Pro)

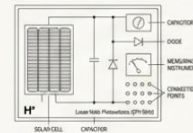
Étude et conception préliminaire d'une installation
(Preliminary study and design of an installation)



Applied Technical Skills (Pillar 2)

German Didactic Systems (Lucas-Nülle)

Leveraging the UniTrain and InsTrain modular learning systems for hands-on experimentation in electronics, automation, and renewable energy. The system includes guided fault simulation and real-time diagnostics.



Indian Vocational Training (ITI)

Incorporating the National Instructional Media Institute (NIMI) curriculum for Electrician Trade (NSQF Level 5), which emphasizes structured practical exercises in wiring, soldering, and workshop safety.

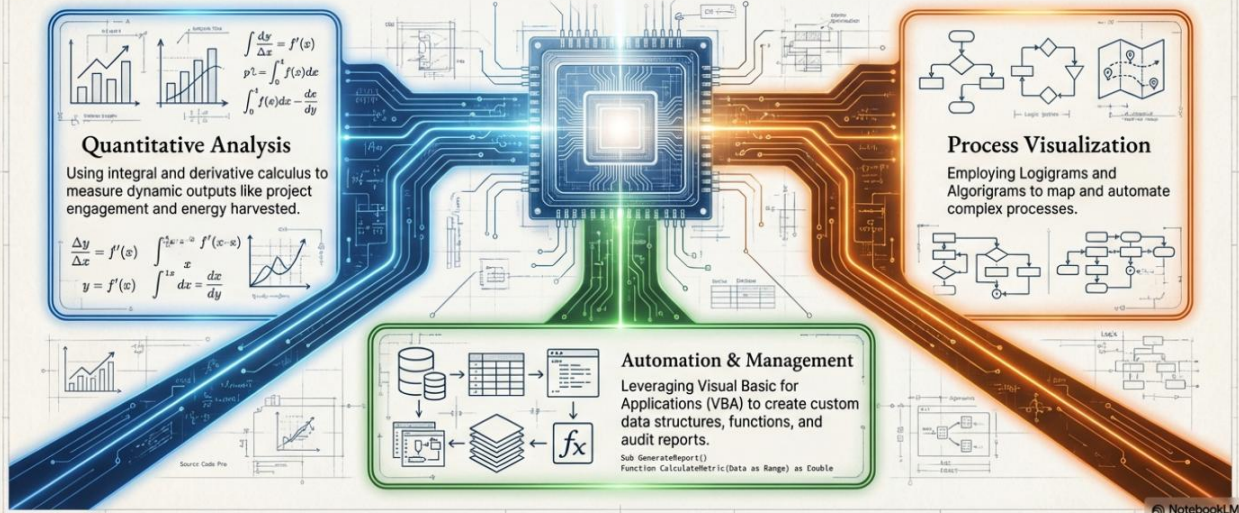
NIMI Curriculum: Electrician (NSQF Level 5)

Module No.:	3
Module Title:	Wires, Joints - Soldering - U.G. Cables
Allocated Time:	125 Hrs

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The Unifying Digital Backbone: Intelligent Connective Tissue

This is not just a collection of records; it is a fully integrated system managed by a custom-built digital engine. This backbone automates credential tracking, quantifies performance using advanced mathematics, and visualizes complex workflows.



The Engine's Logic: Quantifying Performance with Code and Calculus

Credential & Calculation Tracking

```
' Module: CredentialDashboard
Type CalculationRecord
  DateStamp As Date
  Topic As String
  MethodUsed As String
  SimulationTool As String
  ResultSummary As String
  Award As String
  RewardPoints As Integer
End Type
```

A Quantitative Approach

Total Engagement Over Time:

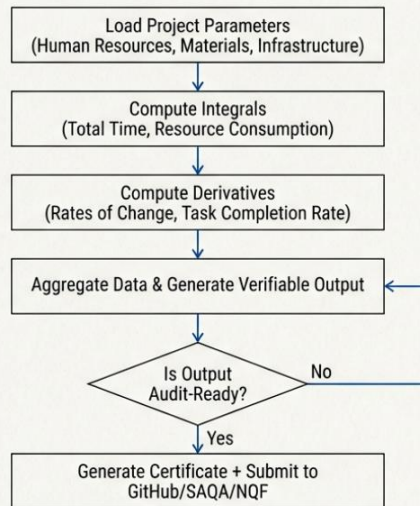
$$E_{\text{total}} = \int_0^T E(t) dt$$

Total Energy Harvested (Wind):

$$E = \int_0^T \frac{1}{2} \rho A v^3 \eta dt$$

Rate of Task Completion: $\frac{dN}{dt}$

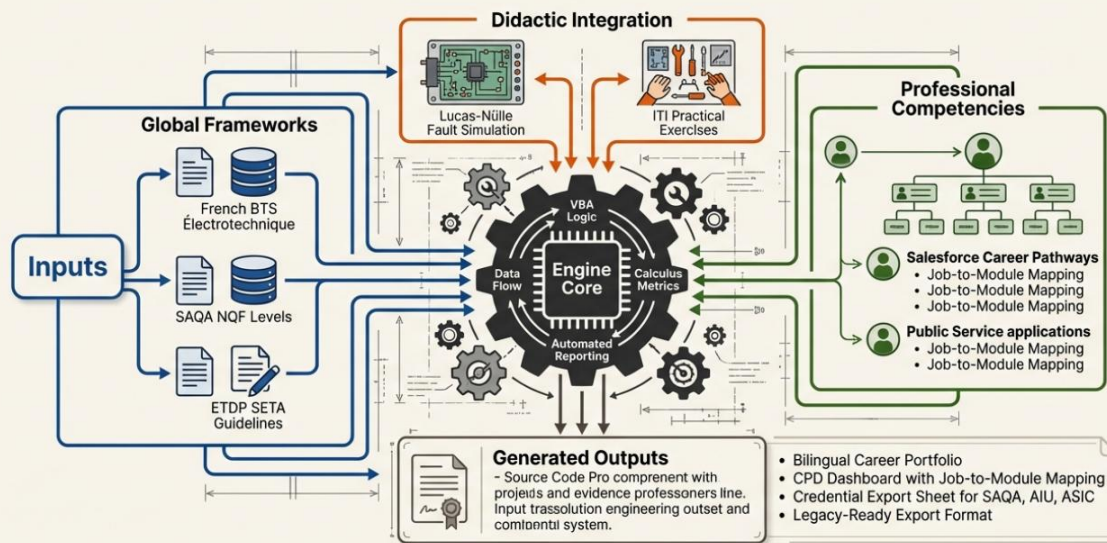
Visualizing the Workflow: An Automated, End-to-End Process



This automated workflow ensures every credential is the product of a traceable, data-driven, and verifiable process.

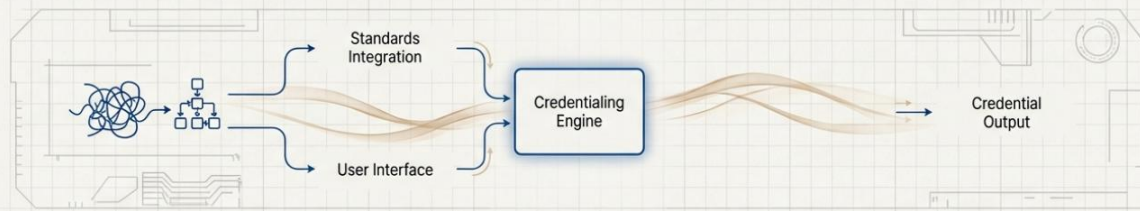
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The Complete Blueprint: A Synthesized Career Dashboard



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The Result: A Dynamic, Verifiable, and Audit-Grade Professional Identity



Systematic Architecture

Turns the chaos of modern credentialing into an ordered, logical, and automated system.



Cross-Domain Mastery

Proven ability to quantify and validate expertise in engineering, law, education, and technology.



Audit-Grade Traceability

Every skill, competency, and credential is backed by a verifiable data record.



Future-Ready

An engine built for a world of continuous learning, micro-credentialing, and dynamic career paths.

This is the definitive engine for building and managing a modern professional identity—one that is intelligent, integrated, and irrefutable.

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The Blueprint: An Integrated Framework for TVET Engineering Studies

Vision: To create a responsive, technology-enabled TVET ecosystem that seamlessly integrates curriculum, practical experience, and industry needs to produce verifiably competent and employable engineering professionals.



Key Principles

- ✓ **Outcome-Oriented:** Success is measured by real-world competency, not just theoretical exams.
- ✓ **Industry-Validated:** Curriculum and assessments are co-designed and constantly validated by industry partners.
- ✓ **Digitally Integrated:** Leveraging technology (LMS, e-Portfolios, AI) to ensure efficiency, transparency, and data-driven improvement.
- ✓ **Holistic Development:** Combining technical skills with soft skills (communication, problem-solving) and professional ethics.

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The Case for a New Model of Expertise

- The evidence demonstrates a sustained, high-level output of technical and pedagogical work against significant systemic friction.
- This journey has forged a unique, multi-disciplinary expertise that integrates core engineering, curriculum design, and a deep understanding of global qualification systems.
- The challenge is no longer one of validation, but of recognition and engagement. The work stands on its own merit.

Engage the expertise. Recognize the innovation.



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CONFIDENTIAL - EVIDENCE FILE

Mastering the System

A Portfolio Demonstrating the Synthesis of Complex Technical, Educational, and Regulatory Frameworks.

Tshingombe Tshitadi



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From First Principles to System-Wide Impact

A unique, demonstrated expertise in translating complex, high-stakes standards (MIL-STD, IEC, SAQA) into practical, audit-ready systems. This portfolio is built on three pillars of mastery:



Foundational Mastery

Deconstructing the most rigorous technical standards.



Applied Expertise

Building robust systems for education and technology.



Systemic Integrity

Navigating complex regulatory and legal environments.

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Architecting Compliance from the Ground Up.

An analysis of MIL-STD-11991B showcases the ability to interpret and implement foundational requirements for military systems. The focus is on establishing non-negotiable traceability as the bedrock of system reliability.

PM&P Incoming Inspection Data Requirements (MIL-STD-11991B Excerpt)

Requirement	EEE parts	Mechanical parts	Materials	Notes
Database fields maintained for life of program	Yes	Yes	Yes	Lot date code, purchase order requirements, C of C data
DPA (Destructive Physical Analysis)	Categories A-B required (one per lot for specific device types)	—	—	
PIND (Particle Impact Noise Detection)	Categories A-C, T	—	—	

This establishes non-negotiable traceability as the foundation of system reliability.

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Engineering for Failure Prevention, Not Just Performance.

Expertise in component-level reliability is demonstrated through the principles of derating and environmental stress analysis. This involves connecting the physical limits of individual components to the operational realities of the complete system.

Table AVI. Microcircuit Derating Factors

Critical Stress Parameter	Digital	Linear
Maximum Junction Temperature	40°C below max rating	40°C below max rating
Power Dissipation	0.80	0.75



Table II. Life Cycle Stresses

Stress	Application Consideration
Temperature limits	Usage outside manufacturer's specified limits discouraged; damage occurs if exceeded.
Mechanical vibration	Long-term vibration exposure can cause damage.

NotebookLM

Ensuring Repeatability and Rigor in Physical Testing

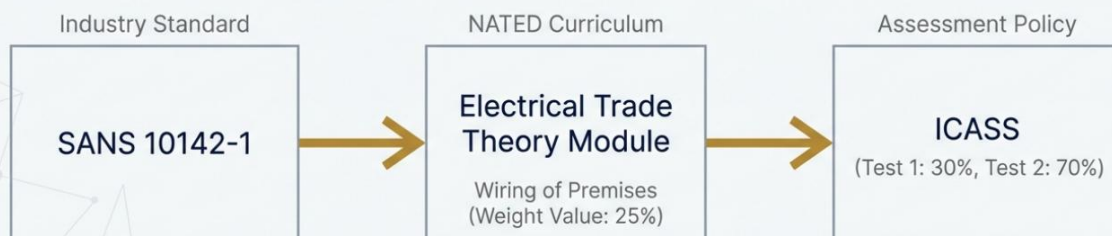
Knowledge of standardized testing methodologies is crucial for validating engineering designs. The following examples from MIL-STD-202G illustrate the breadth of verification expertise.



NotebookLM

Translating Industry Requirements into Educational Frameworks

True system mastery involves not only understanding standards but also engineering the curricula that teach them. This requires mapping industry regulations like SANS 10142-1 directly to educational modules and assessment policies as defined by SAQA and ICASS.



NotebookLM

Case Study: Validating a Curriculum in the Real World.

A research and assessment initiative involving NATED engineering colleges (including St Peace College) and City Power. The project aimed to collect portfolio evidence and validate curriculum content against real-world job requirements in the municipal electricity sector.

“Visited city power site, job work, subject engineering electrical portfolio evidence...”

“Research scope career project job formal duty engineering...”

Desired Outcome: Bridging theory and practice for job-ready graduates.

NotebookLM

A Commitment to Continuous Mastery in a Digital-First World

Proactively building skills in AI, automation, and cloud platforms to meet the demands of modern engineering and system design.



943

Modules completed

756

hr 38 min of training

Trailblazer Rank:
Ranger

Superbadge Earned:
Agentforce for Service

Featured Learning Path:

APL-2007: Accelerate app development by using GitHub Copilot

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A Portfolio of Verifiable Achievement.

A documented history of professional engagement and applications with leading firms in the engineering and energy sectors, demonstrating consistent alignment with industry leaders.



Navigating Complex Regulatory and Labor Systems with Rigor.

Experience includes formal engagement with regulatory and statutory bodies to ensure adherence to established legal and procedural standards in labor relations and security sector compliance.



Ensuring procedural fairness in labor relations (Case Ref: GAJB6808-15).



Upholding statutory obligations in the private security sector.



Engaging with law enforcement to document and report on civil and criminal matters.

Demanding Systemic Accountability Through Documentation.

The same principles of evidence, traceability, and auditability that govern engineering compliance are applied to navigating regulatory systems. This reflects a core belief that fair outcomes are the product of transparent and well-documented processes.

“A belief that fair outcomes are the product of transparent and well-documented processes.”

My Civil Cases

Casts	created	Service Type	Case Type
Lorem Ipsum, Case 123	Lorem Ipsum, Date	Lorem Ipsum, Service	Lorem Ipsum, Type
	Lorem Ipsum, Date	Lorem Ipsum, Service	Lorem Ipsum, Type
	Lorem Ipsum, Date	Lorem Ipsum, Service	Lorem Ipsum, Type
	Lorem Ipsum, Date	Lorem Ipsum, Service	Lorem Ipsum, Type
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	Lorem Ipsum, Date	Lorem Ipsum, Service	Lorem Ipsum, Type
	Lorem Ipsum, Date	Lorem Ipsum, Service	Lorem Ipsum, Type
	Lorem Ipsum, Date	Lorem Ipsum, Service	Lorem Ipsum, Type

A Holistic Approach to Professional Integrity.

True professional integrity exists at the intersection of technical mastery, a commitment to developing others, and unwavering adherence to regulatory and ethical standards.

Technical Expertise
(MIL-STD, IEC, SANS)



Educational Development
(SAQA, NATED, Curriculum Engineering)

Regulatory Compliance
(CCMA, PSIRA, Labor Law)

Acknowledged for Contributions to Career Innovation and Mentorship.

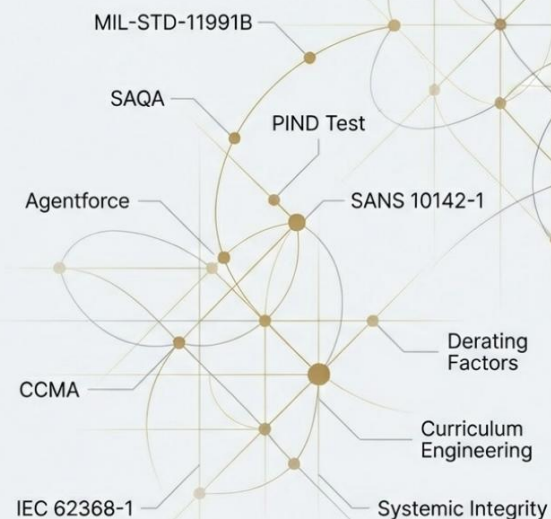
Formal recognition for innovative contributions to career development, curriculum engineering, and mentorship within the South African vocational education landscape.

DHET-SAQA Discovery Award Prize for Career Novation

Gold Award Badge for research innovation in NATED/NCV curriculum engineering, moderator/facilitator excellence, career mentorship, diploma discovery, and didactic material development in electrical engineering.

A Proven Capacity to Master, Apply, and Uphold Complex Systems.

A summary that reconnects the three pillars, showing how they are not separate skills but integrated facets of a single, powerful competency in system building and synthesis.



Ready to Apply a Systems Approach to New Challenges

Tshingombe Tshitadi

tshingombefiston@gmail.com

[Placeholder for LinkedIn or Professional Portfolio URL]

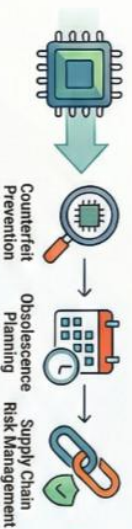
 NotebookLM

The Pillars of Engineering Compliance: Parts & People

A dual compliance system in regulated engineering fields requires strict adherence to standards for both physical components and the formal qualifications of professionals.

Pillar 1: Managing Parts, Materials & Processes

Rigorous Lifecycle Management is Mandatory.

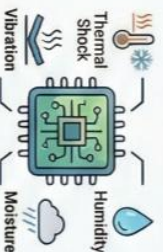


Component Derating Ensures Reliability.



Operating parts below their maximum ratings (e.g., voltage at 50%) prevents premature failure.

Systems Must Survive Harsh Environmental Stresses.

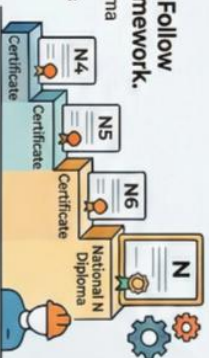


Standardized tests simulate real-world conditions like thermal shock, vibration, humidity, and moisture.

Pillar 2: Managing Professional Qualifications & Assessment

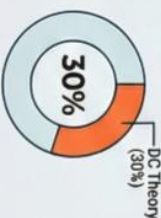
Qualifications Follow a National Framework.

A National N Diploma requires N4, N5, and N6 certificates plus practical experience.



Assessments are Based on Weighted Modules.

For Electrical Trade Theory, core subjects like DC Theory (30%) receive the highest weighting.



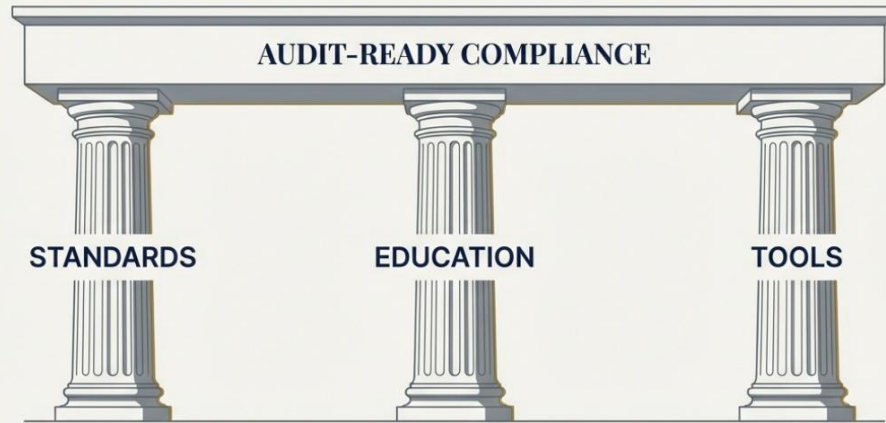
Credentials Require Standardized, Auditable Data.

Official certificates include SAQA ID, NQF Level, and credits for verification.



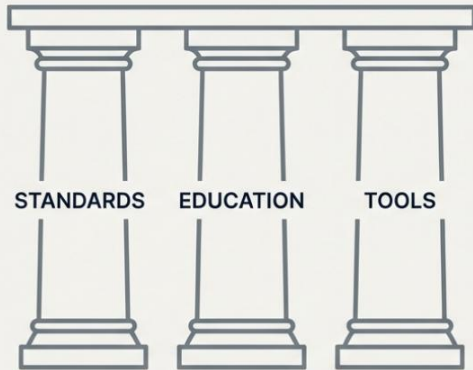
The Three Pillars of Engineering Excellence

A Unified System for Specification, Vocation, and Verification



NotebookLM

An Integrated Ecosystem for Uncompromising Quality



True engineering excellence is not a single achievement, but a self-sustaining system. It rests on three interconnected pillars that create a virtuous cycle of definition, development, and validation.

1. **The Blueprint (Specification):** Rigorous technical standards (MIL-STDs) define exactly what "right" looks like.
2. **The Foundation (Vocation):** Structured educational frameworks (SAQA/NATED) build the human competency required to execute the blueprint.
3. **The Toolkit (Verification):** Applied technology provides the tools to audit, verify, and ensure consistent application of skills against the standards.

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Pillar I: The Blueprint — Defining Excellence with Rigorous Standards



In high-stakes industries like aerospace and defense, ambiguity is the enemy of **reliability**. **Military Standards** (MIL-STDs) provide an uncompromising, evidence-based language for quality. They are not just documents; they are the codified wisdom of decades of engineering practice, covering everything from component selection to environmental survivability.

Key Areas Covered by Standards:

MIL-STD-11991B

Parts, Materials, and Processes (PM&P) Management

MIL-STD-810, MIL-STD-202G

Environmental Engineering & Testing

MIL-STD-100G

Engineering Drawing Practices

MIL-STD-461

Electromagnetic Interference

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The Derating Principle: Building Reliability by Operating Below Maximum Stress

A core tenet of MIL-STD-11991B is component derating—intentionally using parts well below their maximum specified ratings. This practice dramatically increases reliability and lifespan by creating a significant safety margin against electrical and thermal stress.



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Verification at the Source: A Culture of Inspection and Testing

Compliance is not assumed; it is proven. MIL-STDs mandate a comprehensive suite of inspections and tests to validate every component and process, from incoming materials to final assembly. The goal is to detect non-conformance, counterfeit parts, and latent defects before they can compromise a system.

Key Inspection & Test Examples from MIL-STD-11991B & MIL-STD-202G



Counterfeit Detection

Marking Permanency tests (mineral spirits, acetone) to detect remarked parts.



Internal Defects

Radiological Inspection (X-ray) to verify die size and leadframe consistency.



Loose Particles

Particle Impact Noise Detection (PIND) to find contaminants in sealed cavity devices.

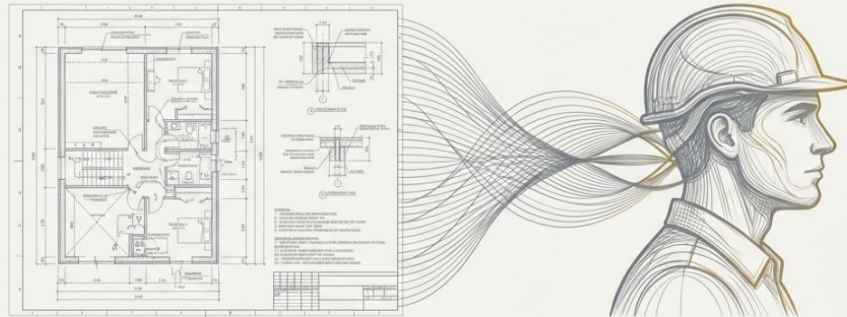


Environmental Survivability

Thermal Shock (liquid-to-liquid or air-to-air) and Random Vibration tests to ensure components withstand operational stress.

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An Exacting Blueprint Requires Expert Architects and Builders



These standards are comprehensive but not self-enacting. Their successful implementation depends entirely on a workforce with the requisite technical knowledge, practical skills, and commitment to quality.

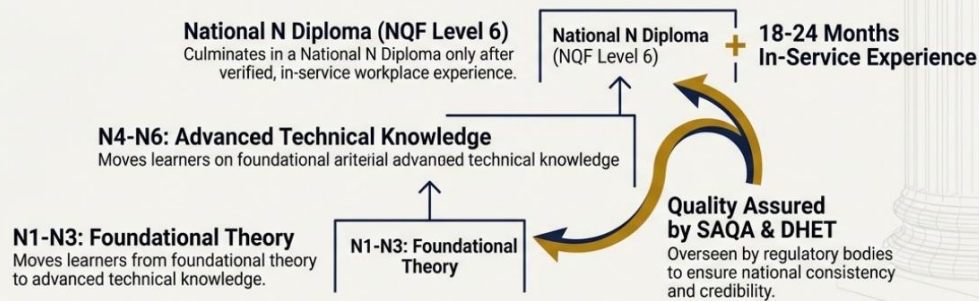
How do we systematically cultivate this deep expertise?

NotebookLM

Pillar II: The Foundation — Forging Competency Through Structured Education

Engineering excellence is built, not born. A robust educational framework is essential for translating complex standards into practical skills. The South African model, governed by SAQA and DHET, provides a powerful case study in vertically integrated technical training.

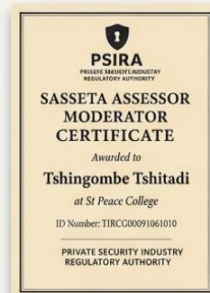
The NATED (National Accredited Technical Education Diploma) Framework:



NotebookLM

The Practitioner's Passport: A Journey of Accredited Expertise

The framework produces professionals with verifiable, multi-faceted qualifications. The career of Tshingombe Tshitadi illustrates this journey, combining formal engineering education with credentials in assessment, moderation, and continuous professional development. This establishes the lived authority required to not only practice but also to teach and validate the skills of others.

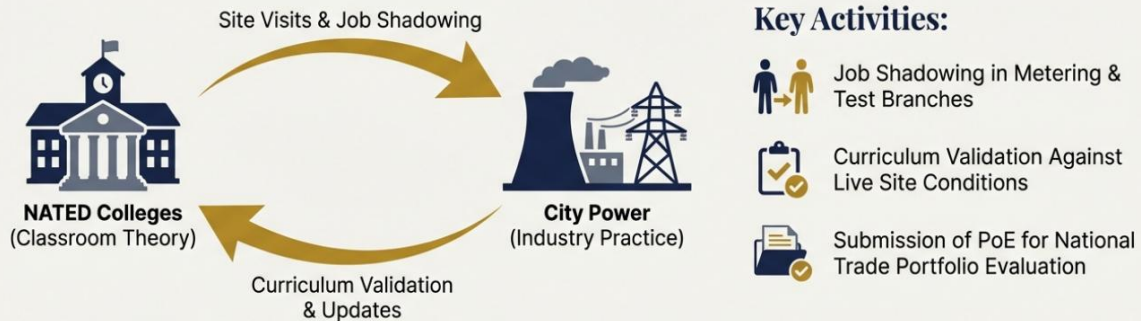


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Bridging the Gap: Where Curriculum Meets the Real World

An effective educational system constantly validates its curriculum against industry practice. The NATED engineering colleges' visit to City Power serves as a model for this alignment. Through job shadowing and site inspections, students and lecturers ensure that classroom theory—like SANS 10142-1 wiring standards—is directly applicable to the challenges of a municipal utility.

This process enriches the student's Portfolio of Evidence (PoE) and informs curriculum updates, ensuring graduates are not just certified, but truly job-ready.



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Competency is Proven Through Consistent, Verifiable Practice



Graduating a qualified engineer is a critical milestone, but it is not the end of the story. For an organization to achieve true compliance, it must ensure that these hard-won skills are applied correctly and consistently across all projects, every single day.

The next challenge: **How do we scale and verify expert performance?**

NotebookLM

Pillar III: The Toolkit — Embedding Excellence with Applied Auditing Technology

Human expertise is invaluable, but human processes are fallible. To ensure unwavering compliance, we must augment human skill with technology. The third pillar involves creating practical, automated tools that translate the complexity of MIL-STDs into simple, error-proof workflows for auditing and verification. This moves quality assurance from a manual, spot-check process to a systematic, embedded function.

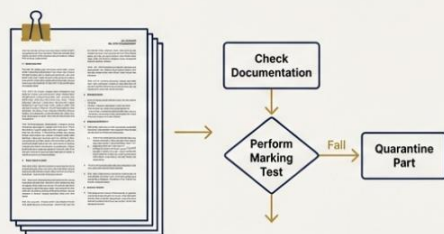


NotebookLM

From Dense Standards to Dynamic Checklists

We can transform static compliance documents into interactive, intelligent auditing tools. By mapping the decision logic of a standard into a logigram or algorigram, we can then use simple but powerful code (like Excel VBA) to automate the process.

1. Map the Logic



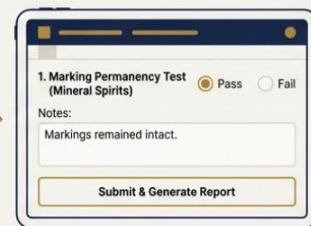
A process like "Counterfeit Part Detection" from MIL-STD-11991B is mapped into a decision flowchart (logigram).

2. Automate the Workflow



A VBA macro parses the standard's text and generates an interactive checklist based on the mapped logic.

3. Execute the Audit



An inspector uses the tool, which guides them through the process, records findings, and creates an audit-ready trail automatically.

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The Ecosystem of Excellence: A Virtuous Cycle

These three pillars are not independent silos; they form a powerful, self-reinforcing ecosystem. Each element informs and strengthens the others, creating a continuous loop of improvement and compliance.

```
graph TD; STANDARDS[STANDARDS] -- "Informs Curriculum & Defines Competency" --> EDUCATION[EDUCATION]; EDUCATION -- "Builds Expertise to Apply & Develop Verification Methods" --> TOOLS[TOOLS]; TOOLS -- "Verifies Compliance & Provides Data for Improvement" --> STANDARDS; Center((Sustainable, Audit-Ready Engineering Excellence));
```

STANDARDS

EDUCATION

TOOLS

Sustainable, Audit-Ready Engineering Excellence

Informs Curriculum & Defines Competency

Builds Expertise to Apply & Develop Verification Methods

Verifies Compliance & Provides Data for Improvement

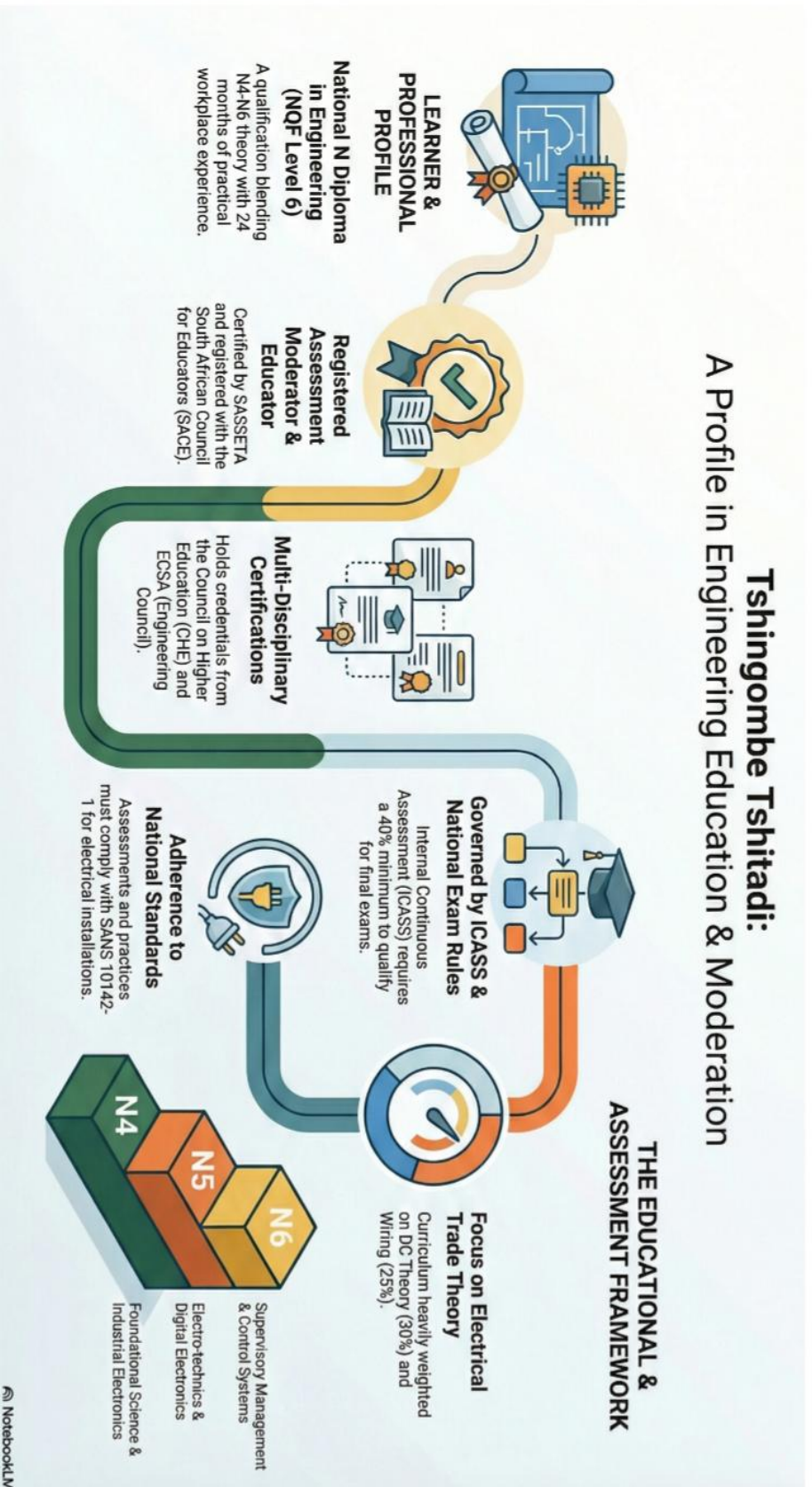
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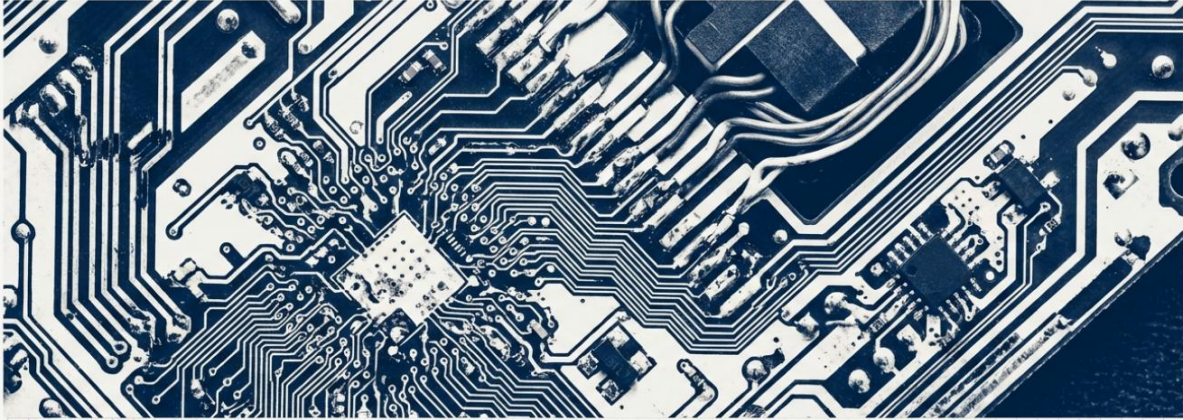
The future of high-reliability engineering belongs to organizations that master this integrated system. By strategically aligning rigorous **standards**, targeted **education**, and intelligent **tools**, we move beyond simply managing compliance to building a culture of intrinsic excellence. This is not just a methodology; it is a blueprint for creating a resilient, verifiable, and world-class engineering practice.

The diagram illustrates the three pillars of engineering excellence. At the top, a dark blue horizontal bar contains the text "Sustainable, Audit-Ready Engineering Excellence" in white. Below this bar are three dark blue classical columns. Each column has a small icon above it: a document for "STANDARDS", a graduation cap for "EDUCATION", and a gear for "TOOLS". The columns are set against a light gray background with a subtle grid pattern.

NotebookLM

Tshingombe Tshitadi: A Profile in Engineering Education & Moderation

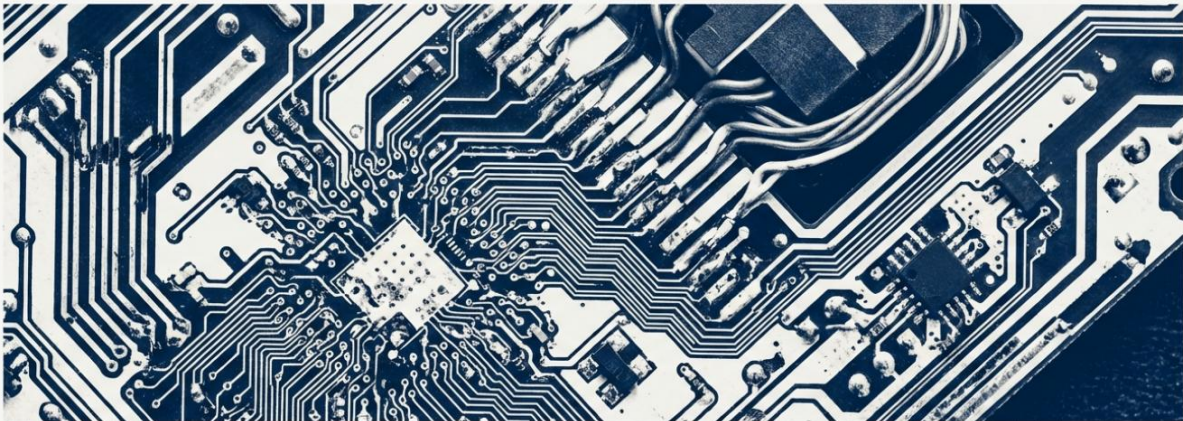




The Engineer's Blueprint

Forging the Future of South African Electrical Engineering

NotebookLM



The Engineer's Blueprint

Forging the Future of South African Electrical Engineering

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South Africa's Industrial Future Demands a New Caliber of Engineer



The 4th Industrial Revolution (4IR), urbanization, and the energy transition are placing unprecedented demands on our infrastructure.



Key entities like **Eskom** and **City Power** are at the forefront of this challenge, facing a critical need for talent to manage and innovate within complex systems.



The current talent pipeline is struggling to keep pace, creating a significant risk to national competitiveness and service delivery.

The innovation define city power municipality government institutes city jhb delivery matter supply public and private urbanization energy electrical.

NotebookLM

A Systems Integration Failure: The Gap Between Education and Industry



Curriculum Mismatch

A significant gap exists between NATED subjects (N1-N6) and the real-world application of electrotechnology, power systems, and modern automation.



Unstructured Practical Experience

Students face "irregularity" in the system. Site visits to high-voltage environments are often unstructured and potentially unsafe, lacking defined learning outcomes. ("...student was not in site was dangerous place for health student working in higher voltage...")



Fragmented Assessment

A divide between theoretical "dhet nated class question theory test" and practical "test trade" competency evaluation creates confusion and devalues qualifications.

NotebookLM

1 Pillar 1: A Dynamic, Demand-Led Curriculum

TRADITIONAL NATED SUBJECTS

Mathematics
Engineering Science
Industrial Electronics
Electrotechnics

MODERN 4IR APPLICATIONS

Robotics Kinematics & Control
Smart Metering Systems
PLC Programming
Network Transmission Analysis



Integrate First Principles with 4IR Applications

- The curriculum must ground students in fundamental engineering science, mathematics, and electrotechnology while explicitly connecting these principles to modern challenges like smart grids, robotics, and automation.



Align NQF Levels with Industry Milestones

- Map NATED subject outcomes (N1-N6) to specific, industry-recognized competencies, from basic panel wiring (N4/N5) to complex system logic.



Introduce Modern Tooling Early

- Incorporate education on contemporary systems like PLC programming, SCADA, and digital twin simulation, reflecting the tools used by City Power and Eskom.

Evidence: Required: labour training quality body assessment, driven machinery regularite safety 1999, acting in term code practice.

NotebookLM

2 Pillar 2: Structured Industry Praxis

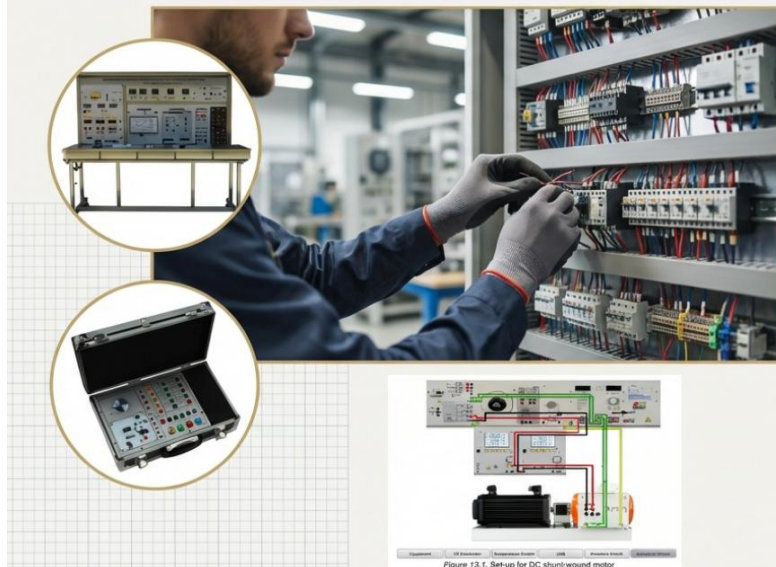


Figure 13.1: Setup for DC shunt-wound motor

Key Actions:

- "Formalized Partnerships"**
Establish Memorandums of Agreement between TVET colleges (e.g., St Peace College) and industry leaders (e.g., City Power) for structured apprenticeship programs.
- "Defined Learning Modules"**
Replace undefined "day visits" with structured modules focused on specific, measurable skills:
 - Panel wiring and DB box installation
 - Fault-finding and protective device sequencing
 - Single-phase metering installation and testing
 - Adherence to SANS 10142 safety protocols
- "Mentorship and Supervision"**
Assign experienced industry practitioners to mentor and supervise trainees, ensuring safe practices and knowledge transfer.

NotebookLM

3 Pillar 3: Competency-Based Unified Assessment



Integrated Assessment Tools: Develop a unified 'Portfolio of Evidence (Poe)' that includes both NATED exam results and a logbook of verified practical competencies completed on-site.

Co-Developed Assessment Criteria: Industry partners and academic institutions will jointly develop the assessment rubrics, ensuring questions and tasks reflect real-world challenges.

Co-Signed Certification: Upon successful completion, the student receives a National Diploma that is co-signed by the DHET-accredited college and the industry partner (e.g., "City Power Certified"), signaling immediate workplace readiness.

NotebookLM

A Multi-Domain Expert

A presentation in two parts, showcasing a decade of experience in designing and implementing complex electrical and software systems while concurrently navigating the intricate procedural demands of the South African legal system.



1 Part I: Mastering Engineered Systems

A portfolio of core technical projects.



2 Part II: Navigating Human Systems

A case study in systematic problem-solving and resilience.



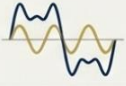
3 Synthesis

Core competencies and forward outlook.

NotebookLM

Grounded in First Principles

The framework is built on a deep and rigorous understanding of the fundamental laws of electrical and mechanical engineering. Any practical application must be derived from a mastery of the core principles.

Synchronous Motor Equations $V = E_b + I_a(R_a + jX_s)$	Transformer Voltage Regulation $\% \text{ reg (down)} = \frac{(V_{(\text{no-load})} - V_{(\text{full load})})}{V_{(\text{no-load})}} \times 100\%$
Fourier Transform Notation  transformer Fourier TD ✓ (x, y)	Calculus & Resonance $\frac{dy}{dx} = \frac{4x + 3}{2x + 2}$ $f = \frac{1}{2\pi\sqrt{\frac{1}{RC} - \frac{R^2}{L^2}}}$
Ideal Gas Law (Thermodynamics) $\frac{P_1 V_1}{T_1} = \frac{P_2 V_2}{T_2}$	

NotebookLM

Engineered for Implementation

This framework is supported by a detailed implementation plan, including stakeholder analysis, project objectives, budget considerations, and monitoring and evaluation mechanisms, as outlined in the proposal framework for the Department of Higher Education and Training (DHET).

Main Activities	Outputs/ M&E	Timeframe	Responsible Person	Detailed Costs
Engineering electrical assessment curriculum policy	2	8h	Tshingombe	50,000
Electrical portfolio engineering	12	8h	Tshingombe Tshitadi	50,000



NotebookLM

Built on a Foundation of Safety & Standards

The entire framework is designed to comply with and embed compulsory national and international standards, ensuring all training and outcomes meet the highest levels of safety and quality for electrical installations.

SANS 10142

The basic safety of electrical installation.



SABS

South African Bureau of Standards

EIC

Electrical International Commissioner



OSHA

Occupational Health and Safety Act



VC 8036

Compulsory specification for circuit breakers.



VC 8035

Compulsory specification for earth leakage protection units.



NotebookLM

The Architect of the Blueprint: Fiston Tshingombe



This framework is the culmination of a journey spanning the full spectrum of the engineering ecosystem.



Academic Progression

Successfully navigated the N-Diploma (N1-N6) curriculum, gaining first-hand experience of its strengths and weaknesses.



Professional Practice

Engaged in high-level 'Business Engineering' consulting, as evidenced by professional invoices (e.g., ZAR 100,920.00).



Systemic Research

Developed and documented this comprehensive solution as part of a formal research plan for the Eskom Expo for Young Scientists, demonstrating a commitment to systemic improvement.

NotebookLM

An Invitation to Collaborate

The blueprint is ready. We are seeking partners to build the future of South African engineering. We propose the following next steps:



1. Stakeholder Workshop

Convene a workshop with key stakeholders—**DHET, City Power, Eskom, SAQA, QCTO, and TVET College representatives**—to refine the framework and establish a working group.



2. Pilot Program Launch

Partner with an industry leader and a TVET college to launch a pilot program based on one core module (e.g., 'Metering and Smart Grid Integration') to validate the model and measure outcomes.

Fiston Tshingombe

tshingombekb@gmail.com

[Placeholder for Professional Contact Number]

NotebookLM

A Multi-Domain Expert

A presentation in two parts, showcasing a decade of experience in designing and implementing complex electrical and software systems while concurrently navigating the intricate procedural demands of the South African legal system.



1

Part I: Mastering Engineered Systems

A portfolio of core technical projects.



2

Part II: Navigating Human Systems

A case study in systematic problem-solving and resilience.



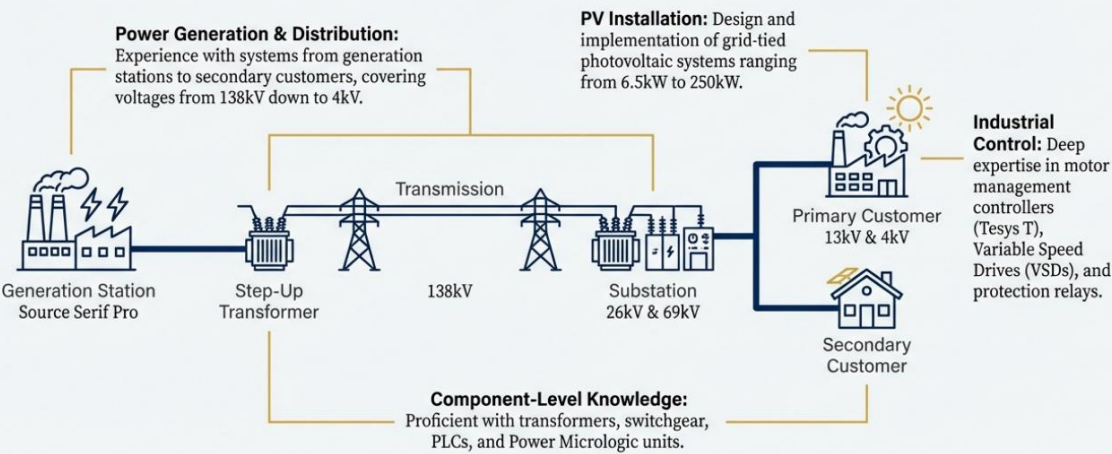
3

Synthesis

Core competencies and forward outlook.

 NotebookLM

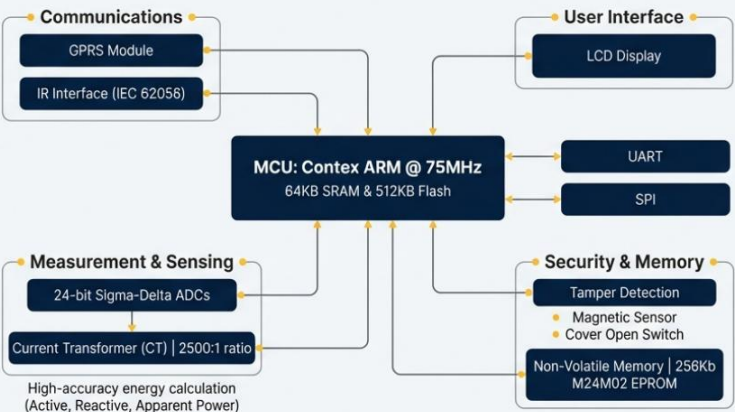
Architecting the Flow of Energy



NotebookLM

Project Showcase: Three-Phase Smart Meter Architecture

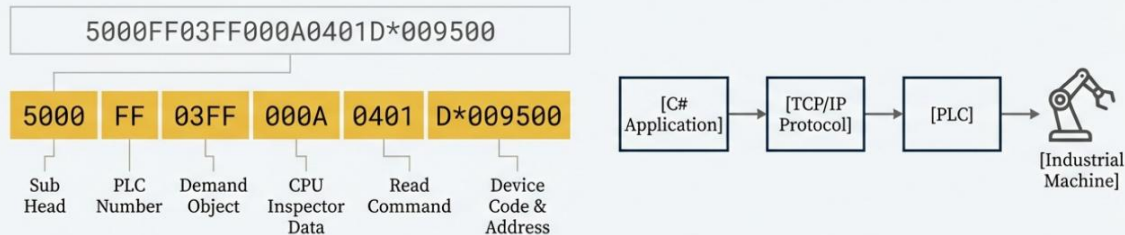
Detailed analysis and component breakdown of a smart meter based on the MKM35512 series MCU, designed for real-time, low-power grid monitoring and secure data transmission.



NotebookLM

Bridging the Physical and Digital Worlds with PLCs

Expertise in programming and communication with Programmable Logic Controllers (PLCs) for industrial automation.



****Key Skill: Protocol Engineering****

Demonstrated ability to construct and parse complex command strings for PLC data exchange over TCP/IP. The example showcases a C# implementation for reading/writing to a specific device address.

NotebookLM

Creating Solutions with Code

A portfolio of applications developed using Visual Basic (VBA/VB.NET) and C# to solve specific business and engineering problems.

Automated Student Registration

The form includes input fields for Student Name, Father Name, and Date of Birth. It also features a gender selection (Male/Female) and an image upload section. Submit and Reset buttons are at the bottom.

An Excel/VBA UserForm with database integration, input validation (`ValidEntry`` function), image handling (`LoadPicture``), and data persistence.

Visual Basic ATM System

The interface shows a welcome message and a PIN entry prompt. It includes a numeric keypad (0-9), a Clear button, and an Enter button. Transaction options like Deposit, Withdraw, and Balance Inquiry are available.

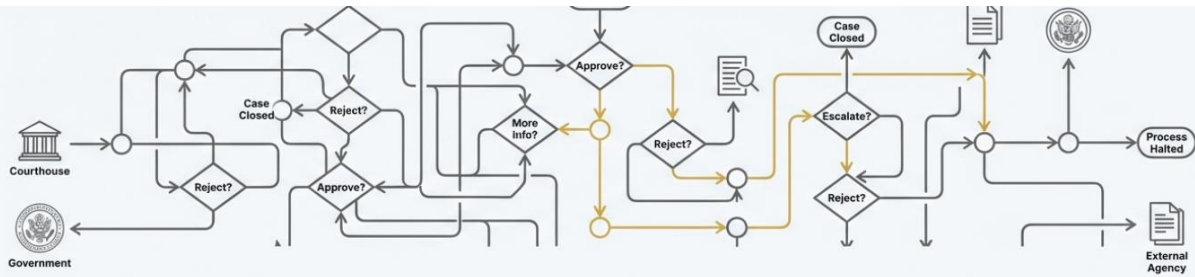
A functional simulation of an ATM interface in VB.NET with logic for PIN verification (`If pin box.text = "9343""`), deposits, and transaction handling.

Engineering Calculator

The calculator displays the number 123.45. It features a standard numeric keypad and buttons for mathematical operations (+, -, *, /, x², √) and trigonometric functions (sin, cos, log, ln). A Clear button is also present.

A custom scientific calculator built in VB with functions for standard and complex operations (`Select case [operator]``).

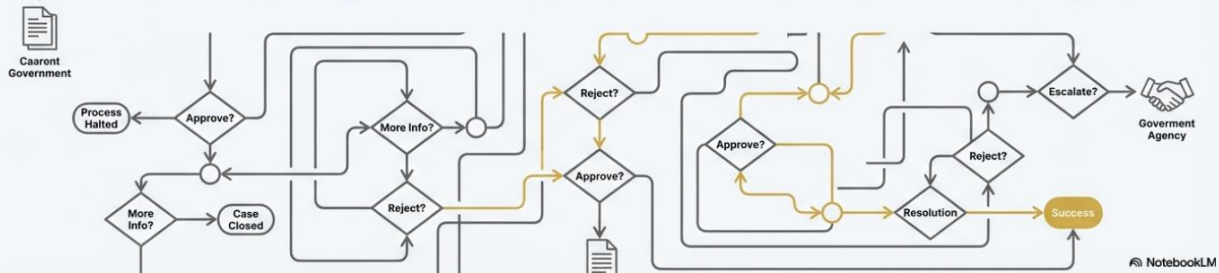
NotebookLM



Part II: Navigating Human Systems

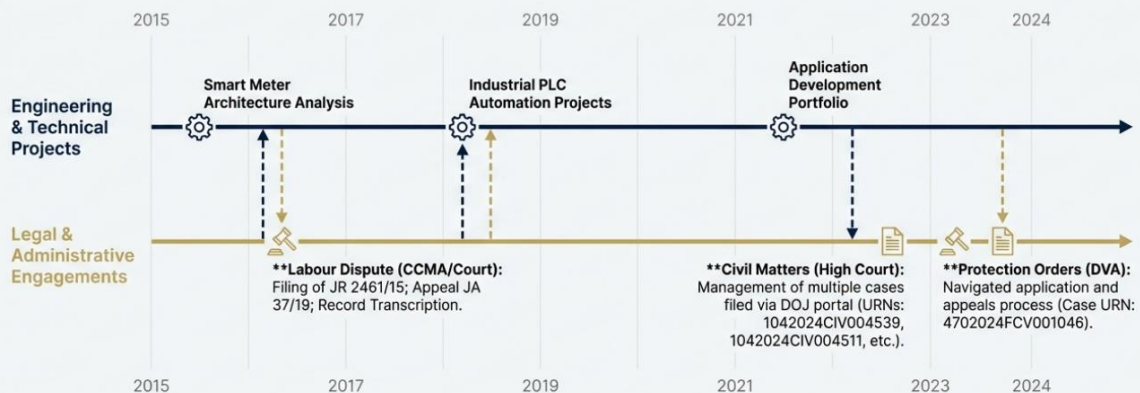


A Case Study in Resilience and Procedural Mastery



A Systematic Navigation of the South African Justice System

Concurrently with full-time technical work, managed multiple complex legal cases requiring deep procedural understanding and direct engagement with various judicial and administrative bodies.



Deconstructing the Legal Process: An Engineer's Methodology

Applied a systematic, engineering-based methodology to legal casework, treating procedural law as a complex system with inputs, processes, and required outputs.

Evidence of Methodical Approach

- **Meticulous Documentation:** Created and maintained detailed indexes of all pleadings, evidence, affidavits, and correspondence for court appeals (e.g., 'Content files JA 37/19').
- **Procedural Adherence:** Correctly filed numerous and varied forms for different legal bodies, including petitions, notices of motion, referrals, affidavits, and proof of service.
- **Multi-Agency Interaction:** Coordinated and managed correspondence with the Department of Justice (DOJ), CCMA, SAQA, DHE, South African Police Service (SAPS), and private sector entities.

Index of Pleadings: Case JA 37/19

Description of document	Page no
Notice of motion: petition for leave to appeal :	1-36
Affidavit in support of application register :	80-82
Notice of record order transcript :	102-104
Notice proof of service contractor close :	138-200
Notice affidavit record answer investigation :	416-458

NotebookLM

Applying Systems Thinking to Societal Challenges

Interest and engagement extends beyond personal casework to the systematic improvement of public safety and justice systems.



NotebookLM

Core Competencies: A Unified Skillset

Technical Acumen

- Power Systems Analysis & Design
- Embedded Systems & IoT (Smart Metering Metering)
- Industrial Automation & PLC Comms
- Application Development (VB.NET, C#, VBA)
- System & Protocol Engineering

Demonstrated Character

- **Exceptional Resilience:** Sustained high-level technical work through multi-year legal challenges.
- **Systematic Problem-Solving:** Applied engineering discipline to deconstruct and navigate complex legal procedures.
- **High Agency & Self-Advocacy:** Proactively managed all aspects of complex personal and professional challenges.
- **Unwavering Tenacity:** Pursued objectives methodically through multiple levels of appeal and bureaucracy.

NotebookLM

Ready for the Next Challenge



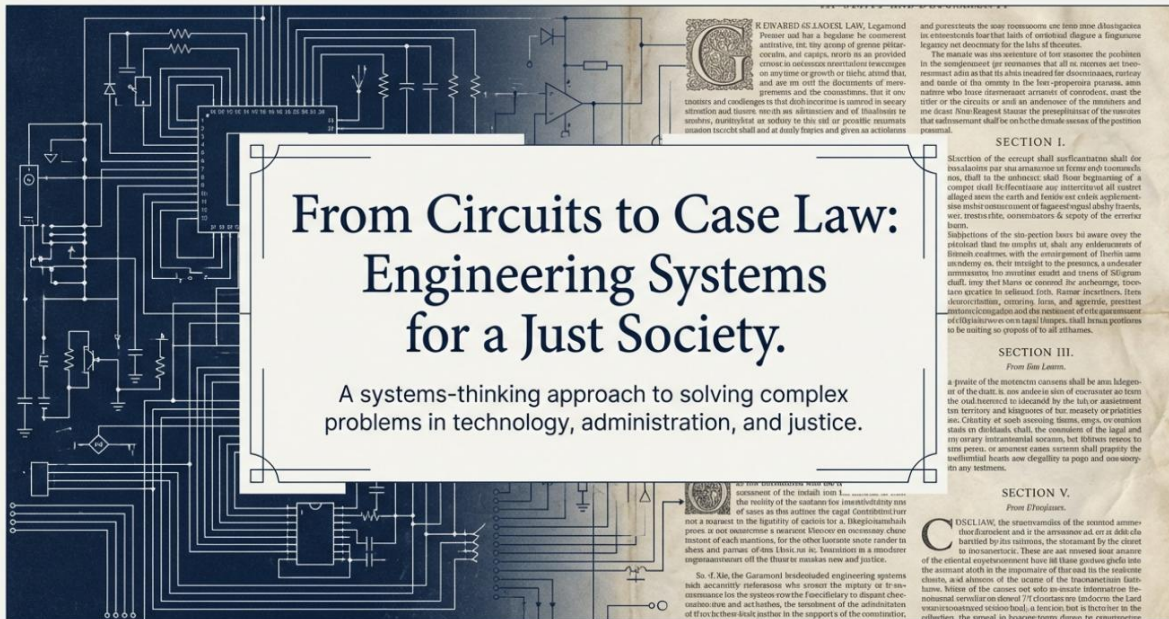
“The ability to design a circuit, write a program, or navigate a courtroom stems from the same core skill: the patient, logical deconstruction of a complex system. I am equipped and eager to apply my unique blend of technical and practical experience to solve the next generation of challenges.”

Name: Tshingombe T. Fiston

Email: TSHINGOMBE@GMAIL.COM

 [linkedin.com/in/your-profile](https://www.linkedin.com/in/your-profile)

NotebookLM



From Circuits to Case Law: Engineering Systems for a Just Society.

A systems-thinking approach to solving complex
problems in technology, administration, and justice.

📖 NotebookLM

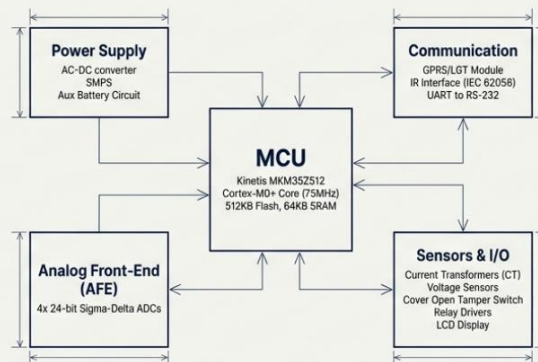
Mastering Physical Systems: The Three-Phase Smart Power Meter

A case study in component-level hardware design for energy management. This project demonstrates end-to-end development, from fundamental theory to a functional, multi-component device.

Core Theory

Active Energy:	$WH = \int u(t)i(t)dt$
Reactive Energy:	$VARh = \int u(t-90^\circ)i(t)dt$
Active Power:	$P = \frac{1}{T} \int u(t)i(t)dt$
Apparent Power:	$S = I_{RMS} \times U_{RMS}$

Hardware Architecture Diagram



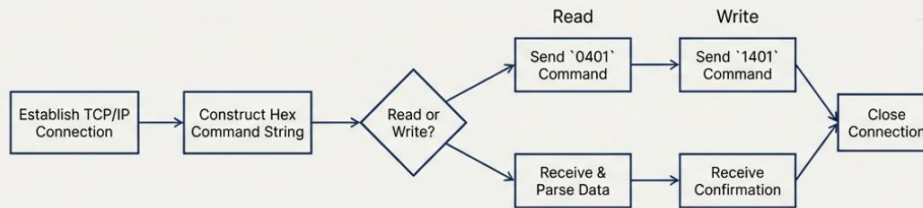
Technical Specifications

- **Nominal Voltage:** 240 VAC +20%
- **Current Range:** 0-60A (10A nominal)
- **Accuracy Class:** 0.5 (0.5%)
- **Remote Communication:** GPRS module with 1x SIM card slot.

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Interfacing with Industrial Systems: PLC Data Communication

Developing and implementing communication protocols to read from and write to industrial PLCs. This is critical for automation, monitoring, and control in manufacturing and infrastructure environments.



C# Code Snippet: PLC Read Command

```
// C# code to construct PLC read command string
string cmd = "";
cmd = cmd + "5880"; // Sub head
cmd = cmd + "89"; // Network number
cmd = cmd + "FF"; // PLC number
cmd = cmd + "03FF"; // Demand object (Module + I/O number)
cmd = cmd + "001C"; // Length of demand data
cmd = cmd + "0401"; // Read Command
cmd = cmd + "D4"; // Device code
cmd = cmd + "009500"; // Address
```

C# Code Snippet: PLC Write Command

```
// C# code to construct PLC write command string
string cmd = "";
cmd = cmd + "FF"; // PLC number
cmd = cmd + "1401"; // Write command
cmd = cmd + "009500"; // Address base
cmd = cmd + "0002"; // Base address
```

Key Functionality

- Establishing IP-based connection to PLC.
- Constructing hexadecimal command strings for specific operations.
- Reading data from device memory locations (e.g., D*009500).
- Writing data to control system behavior.

NotebookLM

Building Digital Systems for Human Interaction

Applying software engineering principles to create efficient and user-friendly administrative and financial systems. These projects focus on automating data collection and simulating complex transaction processes.

Case Study 1: Automated Student Registration Form

Technology: Excel VBA

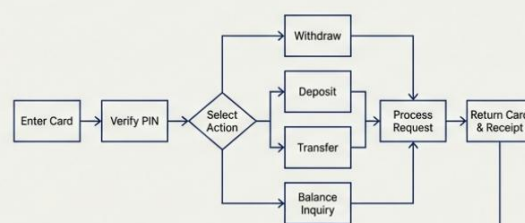
UserForm UI

Student Name	Father Name
Course Applied	Mobile Number
Email ID	Gender ☒ Male ☐ Female
Submit Reset Upload Photo	

- UserForm for data entry.
- Data validation for required fields.
- Image upload functionality.
- Data submission to a backend Excel database.
- Reset and Submit/Update functionality.

Case Study 2: ATM System Simulation

Technology: VB.NET with MS Access Database



- User login with PIN code verification.
- Core banking functions: Deposit, Withdraw, Transfer.
- Account registration and management.
- Backend database for transaction records.

NotebookLM

IN THE HIGH COURT OF SOUTH AFRICA
OF

The Department of Justice and Constitutional Development

The Department of Justice and Constitutional Development
Commission for Conciliation, Mediation and Arbitration (CCMA)
REPUBLIC OF SOUTH AFRICA

COURT ORDER

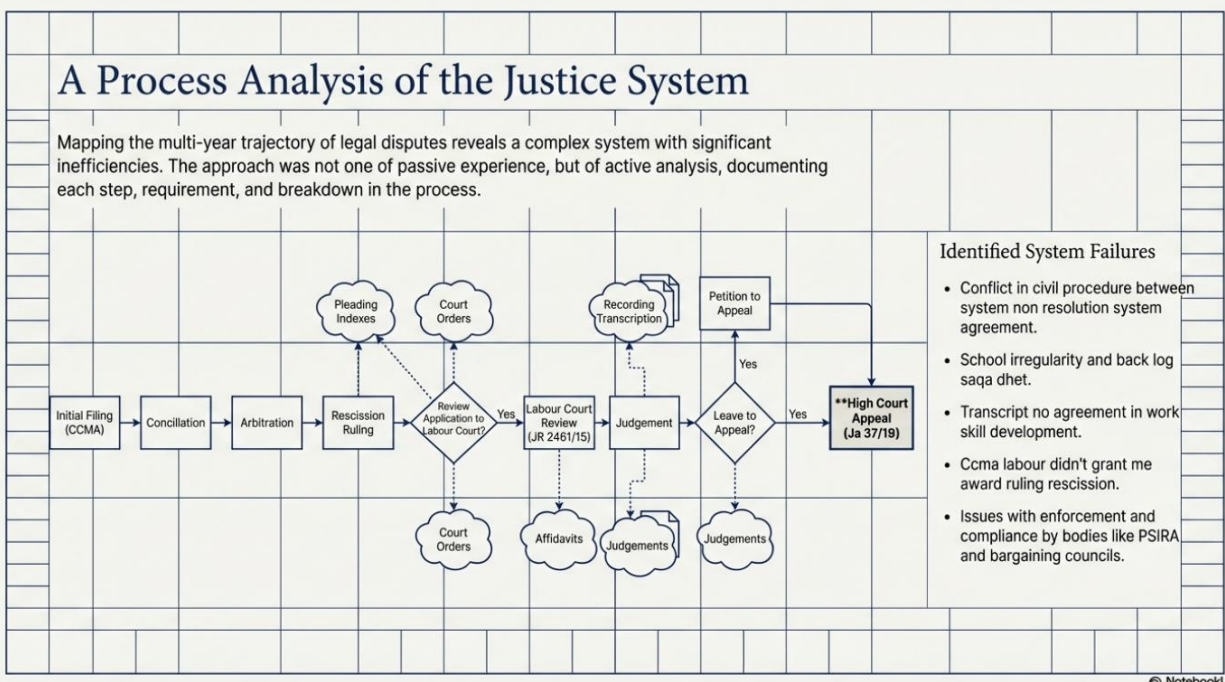
Deconstructing a Different System: Navigating South African Case Law.

Direct, first-hand experience analyzing and navigating the South African legal and administrative systems. journey involved multiple government bodies and courts, revealing systemic processes, protocols, and points of

Key Engagements & Case Numbers

- High Court of South Africa: Appeal Case Number Ja 37/19
- Labour Court: Case Number JR 2461/15
- Commission for Conciliation, Mediation and Arbitration (CCMA): Disputes involving Nogada SA, Elizabeth Lerumu
- Department of Justice and Constitutional Development (DOJ&CD): Online civil case filings (1042024CIV004539, 112024CIV000013) and Protection Order applications (URN 4702024FCV001046)

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Engineering a Principled Solution: A Web-Based Crime Management System

Problem Statement

- Crime is a human experience that must be controlled; police stations play a significant role.
- Current processes are manual and paper-based, leading to inefficiencies in storing, retrieving, and managing crime activities.
- There is a lack of an automated system for citizen communication and crime reporting.

Proposed Solution

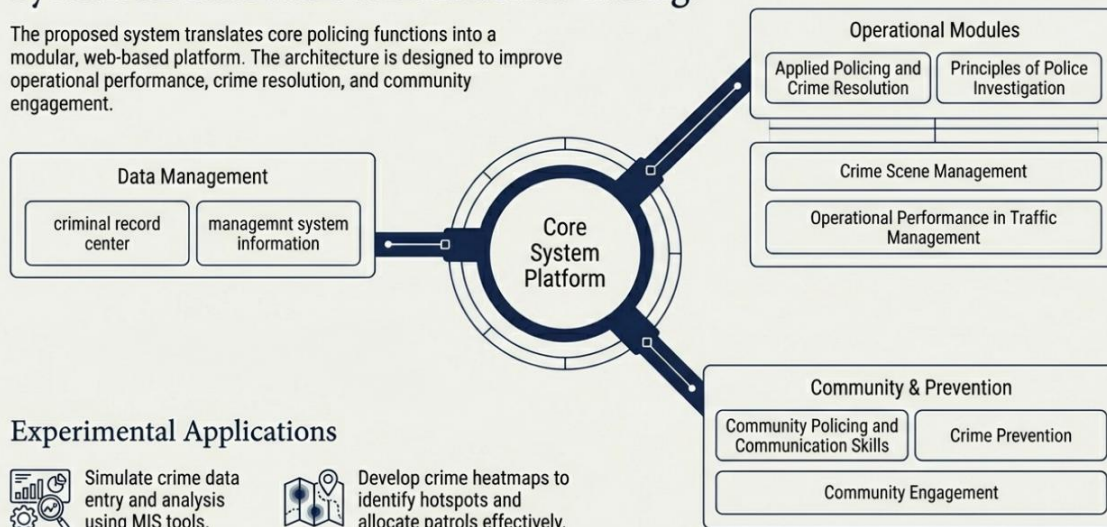
- A web-based application designed to allow any citizen to report crimes online.
- Facilitates online communication between the public and the police.
- Provides a computerized system for the management of crime records.

Incident ID	Type	Location	Date	Status	Action
2024-INC-001	Theft	Central Park, NY	2024-08-15	Open	[View Details]
2024-INC-002	Assault	5th Avenue, NY	2024-08-14	Investigating	[Update]
2024-INC-003	Cybercrime	Online	2024-08-13	Closed	[View Report]
2024-INC-004	Theft	Central Park, NY	2024-08-15	Investigating	[Update]
2024-INC-005	Assault	5th Avenue, NY	2024-08-14	Investigating	[View Details]
2024-INC-006	Cybercrime	Central Park, NY	2024-08-15	Open	[View Details]
2024-INC-007	Cybercrime	Online, NY	2024-08-13	Investigating	[Update]
2024-INC-008	Cybercrime	5th Avenue, NY	2024-08-13	Closed	[View Report]
2024-INC-009	Theft	Online, NY	2024-08-15	Investigating	[Update]

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System Architecture for Modern Policing.

The proposed system translates core policing functions into a modular, web-based platform. The architecture is designed to improve operational performance, crime resolution, and community engagement.



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Proactive Engagement: Application to the South African Police Service.

A formal application for a technical role within the SAPS, demonstrating a direct effort to be part of the solution. The application candidly integrates a complex personal history with a clear statement of professional capability.

SAPS APPLICATION FORM

Section 1: Application Details

Position Applied For

- Detective Officer: Investigation Team B: Economic Crimes (Ref: GP 49/3/17)

Stated Current Position

- Officer engineering / assessment

Core Functions of Target Role

- Control and supervise Economic Crime investigation; ensure quality administrative control and data integrity; ensure crime information is reflected on the Crime Administration System (CAS).

Section 2: Disclosure & Synthesis

Q: Have you ever been found guilty in a disciplinary matter?

A: YES>>>> ccma nogada case labour court, high court doj

Q: Are you a respondent in an interim or final protection order?

A: YES>>> Court orde doj boysen .. dismissal order reason found affidavit

Design note: This transforms a potential liability into a demonstrated history of resilience and deep system knowledge.

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A Commitment to Broader Advocacy and Social Justice.

Registering as a social justice organization to participate in advocacy and human rights initiatives. This demonstrates a principled stand and a desire to contribute to a more equitable society.

Organization Details

Name: Tshingombe Ccma labour court DOJ/ ass police engineering.

Work Description: "Ccma labour court tshingombe vs security police officer righth government mendator land provide fund .granted review".

Areas of Focus

- ☒ Racial justice and anti-racism
- ☒ Economic and social rights
- ☒ Environmental justice
- ☒ LGBTQIA+ rights
- ☒ **The right to a fair trial and access to justice.**
- ☒ The rights of refugees and migrants
- ☒ Women's rights and gender equality
- ☒ Children's rights
- ☒ The rights of persons with disabilities

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A Unified Skillset for Building More Robust and Equitable Systems

CIRCUITS
(SCHEMATICS & LOGIC)

CASE LAW
(PRECEDENT & STATUTES)

The logic required to design a circuit, the protocol to communicate with a machine, and the procedure to navigate the high court are not separate disciplines. They are all systems. One is built of silicon and copper, the other of statutes and precedent. The ability to deconstruct, analyze, and engineer solutions in both domains is a unique and essential skill for addressing the most complex challenges facing society.

Vision Statement: A commitment to applying the rigorous, evidence-based principles of engineering to build more transparent, efficient, and just systems for people.



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An Archive of Systemic Engagement: Index of Pleadings and Filings

A systematic record of legal actions across multiple courts and jurisdictions. This structured approach, akin to software version control or project management, was essential for navigating the complex legal landscape.

Labour Court (Case JR 2461/15)

- Index Notices
- Notice of Motion
- Affidavit in Support of Application (Pages 35-43)
- Notice Judgment Leave Appeal (Pages 43-49)
- Application for Leave to Appeal Head Argument (Pages 56-141)

Labour Appeal Court (Case JA 37/19)

- Notice of Motion Petition for Leave to Appeal
- Affidavit in terms of sect 44(1) complain
- Notice of Record Order Transcript
- Notice proof of service applicant execution

Department of Justice Online Portal

Service Type: Civil Law, Protection Order, Deceased Estate (used for ICT/System related queries)

List of URN/Case Numbers

- 1042024CIV004539
 - 112024CIV000013
 - 4702024FCV001046
- (and others as listed in the source)

Query Example

"My query was conflic in civil procedure between system non resolution system agreement..."

03

NotebookLM

Technology on the Front Lines: Engineering Solutions for Public Safety & Justice

MODERNIZING LAW ENFORCEMENT & LEGAL SYSTEMS



Developing Web-Based Crime Management Systems

To replace manual, paper-based processes for reporting and managing crime records.



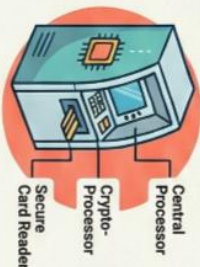
Digitizing the Justice System

Managing legal cases like domestic violence protection orders through online applications.



Core Focus Areas for Police Modernization

Includes applied policing, crime resolution, 'traffic management', and community communication skills.



Building Secure ATM Systems

Key components include a central processor, crypto-processor, and secure card reader.



Designing Three-Phase Smart Power Meters

Integrates MCUs, GPRS modules, and tamper detection for accurate and secure energy metering.



Automating Industrial Controls with PLCs

Involves programming commands to read from and write data to PLCs for system management.

ENGINEERING SECURE INFRASTRUCTURE

Technology on the Front Lines: Engineering Solutions for Public Safety & Justice

Modernizing Law Enforcement & Legal Systems



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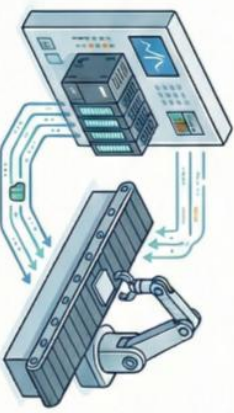
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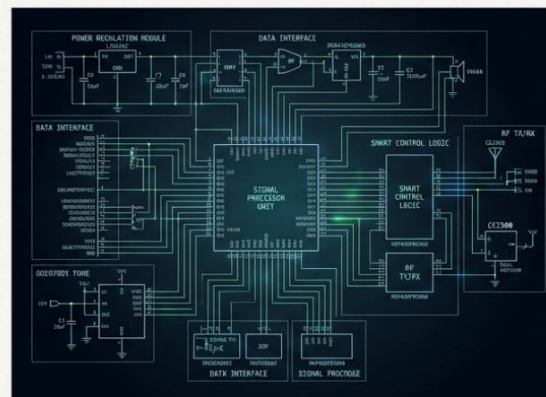


A Practitioner's Case for an Integrated Electrical Engineering Qualification Framework

When the system is flawed, expertise is forged in navigating its complexities. This is the story of that navigation—and the blueprint for a better way forward.

 NotebookLM

A Paradox of Prolific Work and Systemic Hurdles



This dossier chronicles the extensive work of Tshingombe Tshitadi Fiston, an engineer and educator whose journey reveals a critical disconnect. While formal systems presented barriers and rejections, a substantial body of innovative work in electrical engineering, curriculum design, and applied research was consistently produced. This is the evidence of that work.

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Diagnosing a System Marked by Friction and Delay

The Technical and Vocational Education and Training (TVET) system for engineering studies is characterized by systemic irregularities that create significant barriers for learners and lecturers.



Qualification Irregularities

'**Nated ncv combination irregularity**,' non-accredited qualifications, and challenges in recognizing foreign qualifications (SAQA).



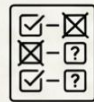
Administrative Backlogs

'**Slow to challenge factor learning** and release resultat printed statement,' '**marking in progress**,' and **extensive delays** in issuing diplomas and certificates from DHET.



Curriculum Misalignment

A gap between **theoretical knowledge** ('trade theory') and practical, industry-relevant skills required by employers like Eskom and City Power.



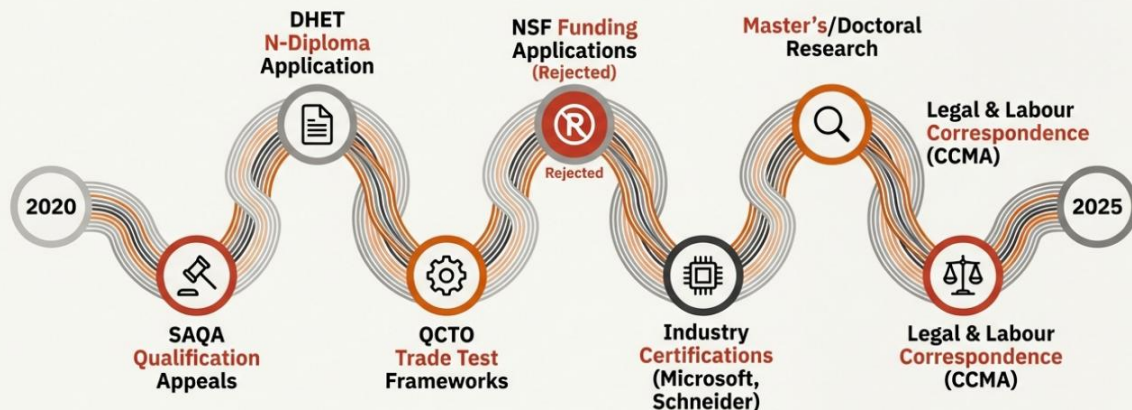
Assessment Inconsistencies

'**Non credible process**,' '**irregularite material script**,' and a lack of standardized, fair assessment policies for Portfolios of Evidence (PoE).

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One Practitioner's Journey Through the Labyrinth

This presentation uses a multi-year case study of navigating the TVET system to diagnose its core challenges and propose a robust, integrated solution. The evidence presented is a direct result of this journey.



"The author is not just talking about the problem; he is the evidence."

📄 NotebookLM

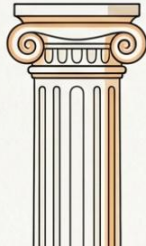
Forging Multidisciplinary Expertise Through Adversity

Navigating the labyrinth of qualifications, funding, and curriculum gaps required the development of a comprehensive skill set far beyond traditional engineering.



Advanced Engineering & Power Systems

Deepening the core technical domain, with a focus on rural energy, smart grids, and industrial automation.



Digital Systems & Educational Technology

Mastering the digital tools necessary to build modern learning solutions and streamline broken administrative processes.



Policy, Pedagogy & Framework Design

Undertaking formal research into the very systems of education, assessment, and qualification that created the initial obstacles.

NotebookLM

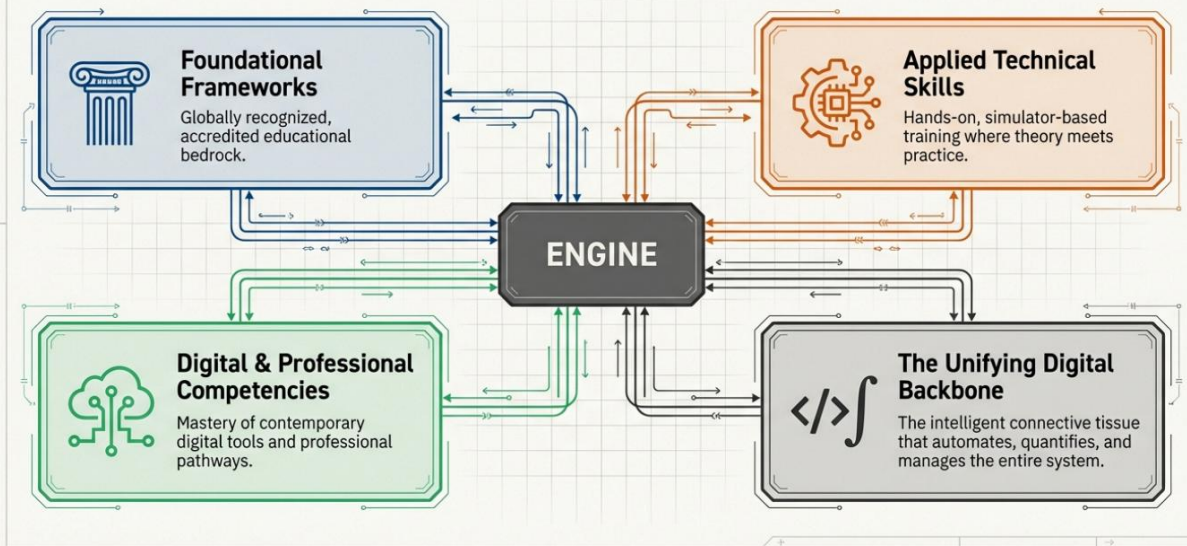
The Audit-Grade Career Engine

A Blueprint for Verifiable Competence

A modular framework that synthesizes formal education, vocational training, and workplace experience into a single, auditable system.

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The Four Pillars of the Career Engine



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Building on a Bedrock of Global Academic and Technical Standards

Foundational Frameworks (Pillar 1)

South African Qualifications Authority (SAQA)

Qualification	National Certificate: Electrical Engineering (ID 72071)
Unit Standard ID	259037
Title	Design and install electrical wire ways
Level	NQF Level 3
Credits	8

French Higher Education

Brevet de Technicien Supérieur (BTS)

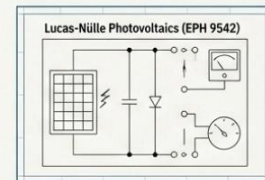
A Level 5 national diploma specializing in technical fields. The curriculum is structured in "blocs de compétences" (competency blocks), allowing for modular validation.

 BTS Électrotechnique – Compétency Block RNCP41007BC01 Étude et conception préliminaire d'une installation (Preliminary study and design of an installation)	
--	--

Applied Technical Skills (Pillar 2)

German Didactic Systems (Lucas-Nülle)

Leveraging the UniTrain and InStrain modular learning systems for hands-on experimentation in electronics, automation, and renewable energy. The system includes guided fault simulation and real-time diagnostics.



Indian Vocational Training (ITI)

Incorporating the National Instructional Media Institute (NIMI) curriculum for Electrician Trade (NSQF Level 5), which emphasizes structured practical exercises in wiring, soldering, and workshop safety.

Module No.:	3
Module Title:	Wires, Joints - Soldering - U.G. Cables
Allocated Time:	125 Hrs

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The Unifying Digital Backbone: Intelligent Connective Tissue

This is not just a collection of records; it is a fully integrated system managed by a custom-built digital engine. This backbone automates credential tracking, quantifies performance using advanced mathematics, and visualizes complex workflows.

Quantitative Analysis

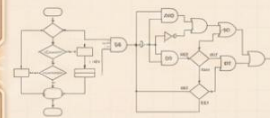
Using integral and derivative calculus to measure dynamic outputs like project engagement and energy harvested.

$$\int f(x) dx = \frac{dy}{dx}$$
$$f'(x) = \frac{dy}{dx} (1 - f'(x))$$



Process Visualization

Employing Logigrams and Algorigrams to map and automate complex processes.



Automation & Management

Leveraging Visual Basic for Applications (VBA) to create custom data structures, functions, and audit reports.



```
Sub GenerateReport()  
    Dim data As Range  
    End Sub  
  
Sub CreateReport()  
    Dim report As Range  
    Dim data = S10.GenerateReport()  
    If data.data to audit, count then  
        count.start = 0  
        print report  
    End If  
End Sub
```

NotebookLM

The Engine's Logic: Quantifying Performance with Code and Calculus

Credential & Calculation Tracking

```
Module: CredentialDashboard  
Type CalculationRecord  
    DateStamp As Date  
    Topic As String  
    MethodUsed As String  
    SimulationTool As String  
    ResultSummary As String  
    Award As String  
    RewardPoints As Integer  
End Type
```

A Quantitative Approach

Total Engagement Over Time:

$$E_{\text{total}} = \int_0^T E(t) dt$$

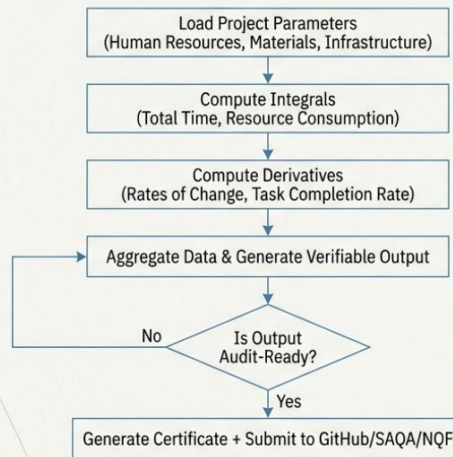
Total Energy Harvested (Wind):

$$E = \int_0^T \frac{1}{2} \rho A v^3 \eta dt$$

Rate of Task Completion: $\frac{dN}{dt}$

NotebookLM

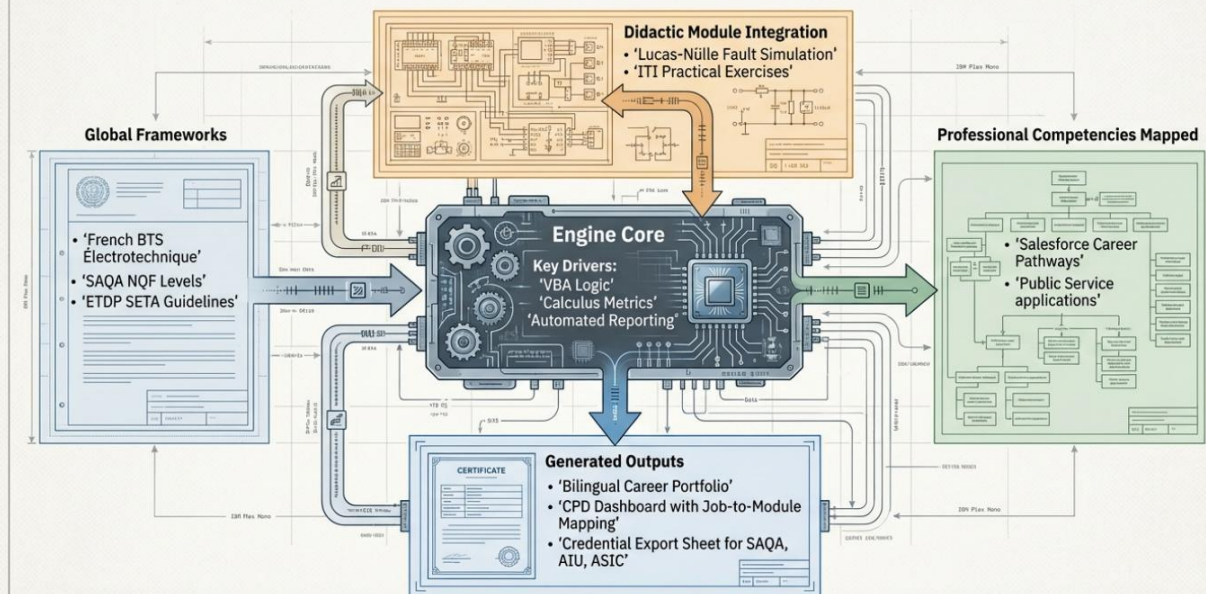
Visualizing the Workflow: An Automated, End-to-End Process



This automated workflow ensures every credential is the product of a traceable, data-driven, and verifiable process.

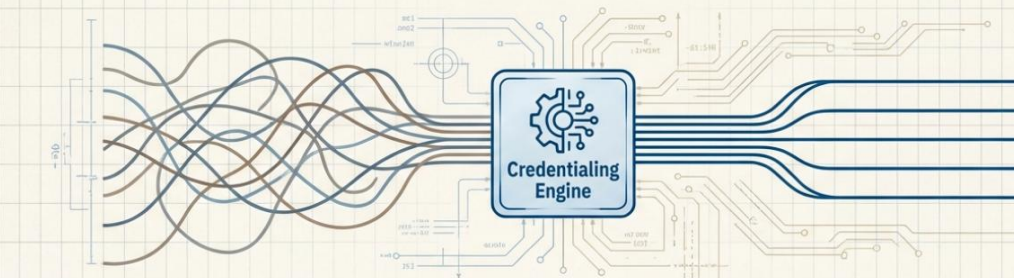
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The Complete Blueprint: A Synthesized Career Dashboard



NotebookLM

The Result: A Dynamic, Verifiable, and Audit-Grade Professional Identity



Systematic Architecture

Turns the chaos of modern credentialing into an ordered, logical, and automated system.



Audit-Grade Traceability

Every skill, competency, and credential is backed by a verifiable data record.



Cross-Domain Mastery

Proven ability to quantify and validate expertise in engineering, law, education, and technology.



Future-Ready

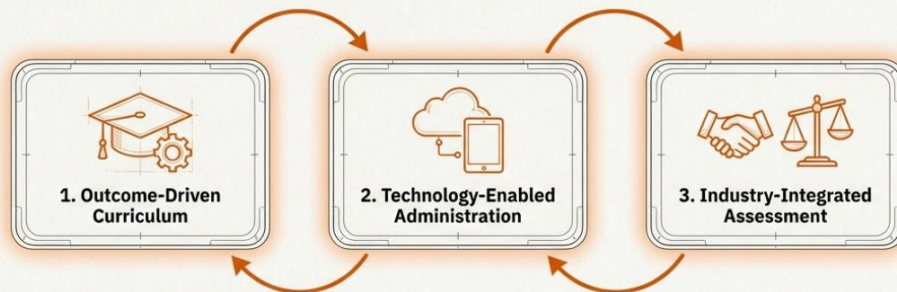
An engine built for a world of continuous learning, micro-credentialing, and dynamic career paths.

This is the definitive engine for building and managing a modern professional identity—one that is intelligent, integrated, and irrefutable.

NotebookLM

The Blueprint: An Integrated Framework for TVET Engineering Studies

Vision: To create a responsive, technology-enabled TVET ecosystem that seamlessly integrates curriculum, practical experience, and industry needs to produce verifiably competent and employable engineering professionals.



Key Principles

- ✓ **Outcome-Oriented:** Success is measured by real-world competency, not just theoretical exams.
- ✓ **Industry-Validated:** Curriculum and assessments are co-designed and constantly validated by industry partners.
- ✓ **Digitally Integrated:** Leveraging technology (LMS, e-Portfolios, AI) to ensure efficiency, transparency, and data-driven improvement.
- ✓ **Holistic Development:** Combining technical skills with soft skills (communication, problem-solving) and professional ethics.

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The Case for a New Model of Expertise

- The evidence demonstrates a sustained, high-level output of technical and pedagogical work against significant systemic friction.
- This journey has forged a unique, multi-disciplinary expertise that integrates core engineering, curriculum design, and a deep understanding of global qualification systems.
- The challenge is no longer one of validation, but of recognition and engagement. The work stands on its own merit.

Engage the expertise. Recognize the innovation.

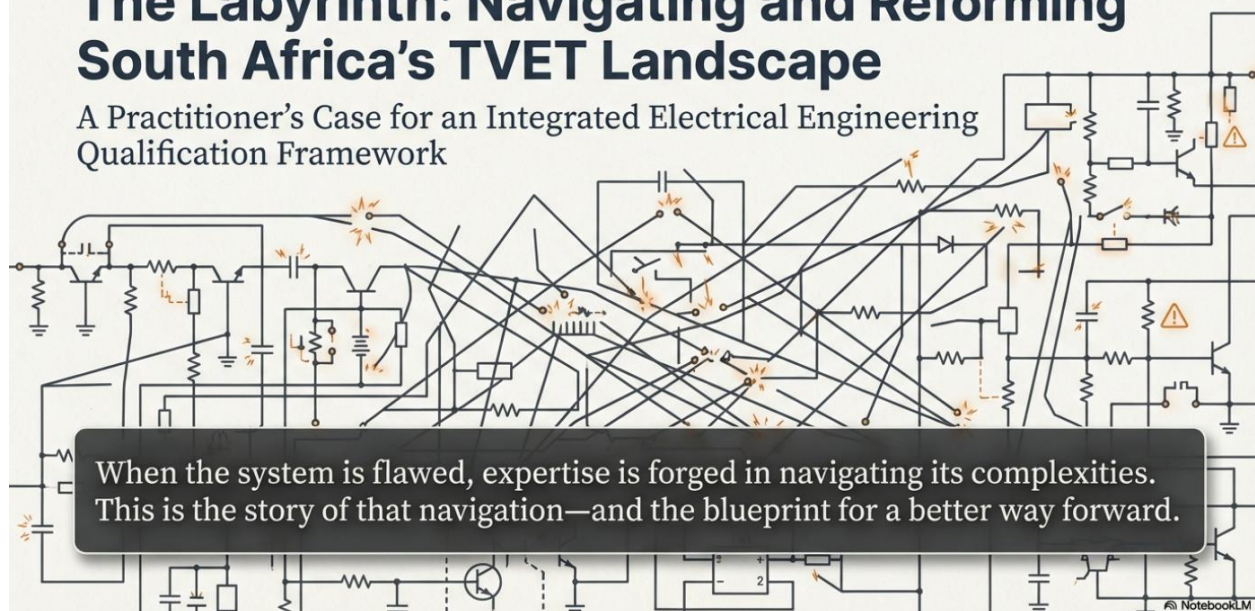


Name: Tshingombe Tshitadi Fiston
Email: tshingombefiston@gmail.com
Website: www.tshingombefiston.com
Profile: archive.org/details/@rdferzm

NotebookLM

The Labyrinth: Navigating and Reforming South Africa's TVET Landscape

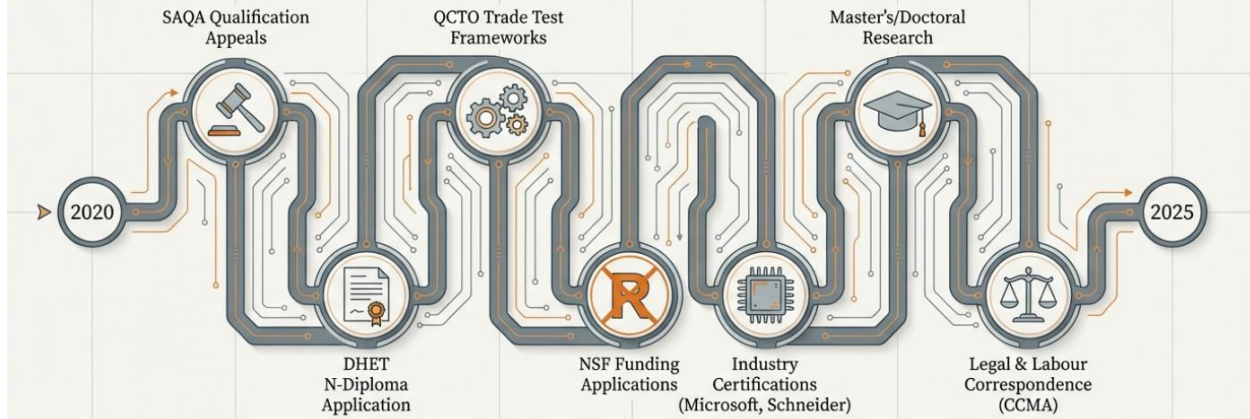
A Practitioner's Case for an Integrated Electrical Engineering Qualification Framework



NotebookLM

One Practitioner's Journey Through the Labyrinth

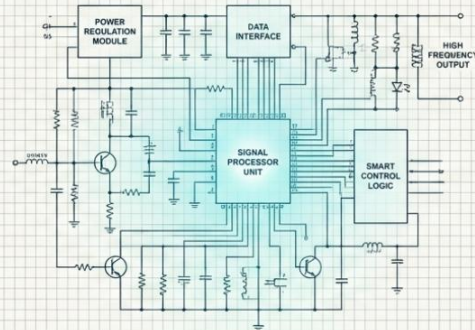
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CONFIDENTIAL - EVIDENCE FILE

This dossier chronicles the extensive work of Tshingombe Tshitadi Fiston, an engineer and educator whose journey reveals a critical disconnect. While formal systems presented barriers and rejections, a substantial body of innovative work in electrical engineering, curriculum design, and applied research was consistently produced. This is the evidence of that work.

NotebookLM

Evidence Log: A Pattern of Systemic Non-Recognition

Exhibit A: NSF I-Corps Rejection Email

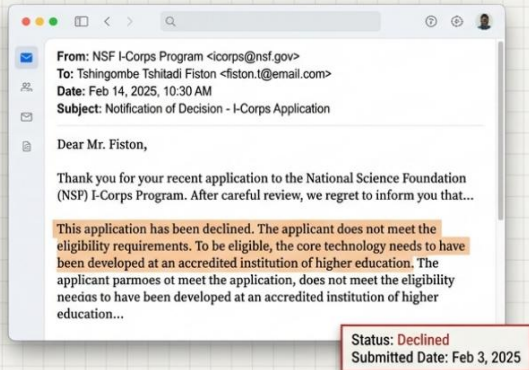
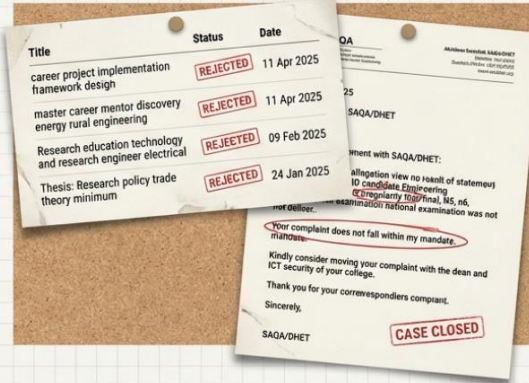


Exhibit B: F1000Research & Correspondence



The issue is not a lack of innovation or effort, but a system designed to exclude those without traditional credentials, regardless of their demonstrated expertise.

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Forging Multidisciplinary Expertise Through Adversity

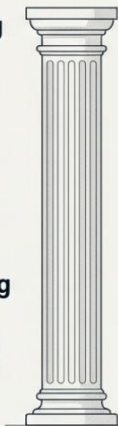
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Advanced Engineering & Power Systems



Advanced Engineering & Power Systems

Deepening the core technical domain, with a focus on rural energy, smart grids, and industrial automation.

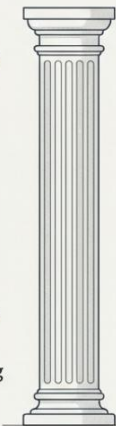


Digital Systems & Educational Technology

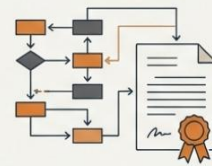


Digital Systems & Educational Technology

Mastering the digital tools necessary to build modern learning solutions and streamline broken administrative processes.



Policy, Pedagogy & Framework Design

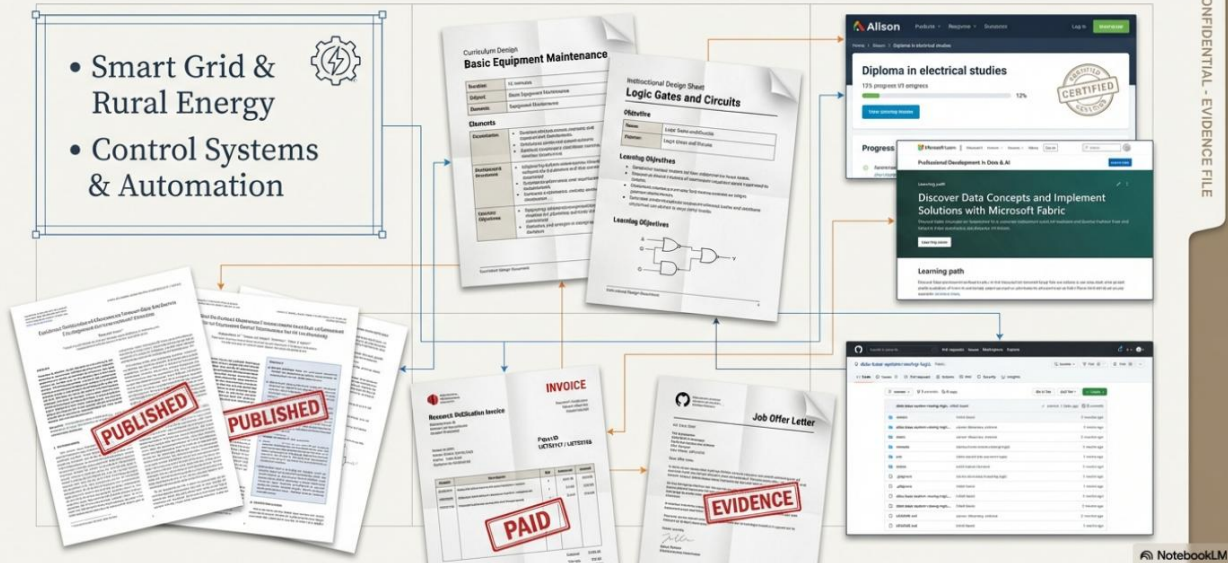


Policy, Pedagogy & Framework Design

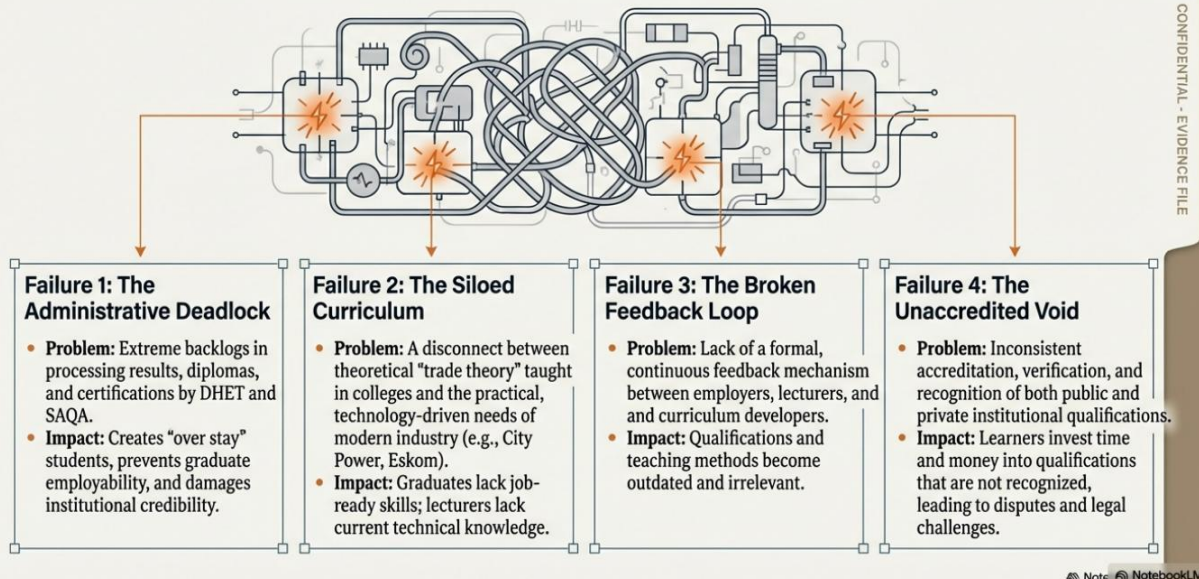
Undertaking formal research into the very systems of education, assessment, and qualification that created the initial obstacles.

NotebookLM

An Archive of Persistent Intellectual Output



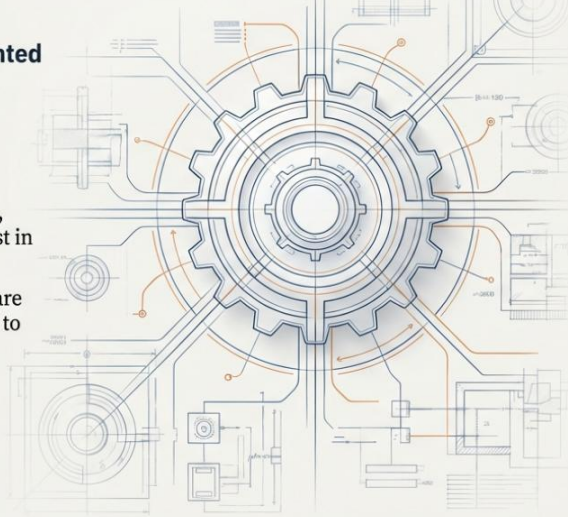
The Diagnosis: Four Critical Failures in the TVET System



A New Paradigm for Professional Credentialing

The Challenge: Fragmented Competence

- Resumes are static, self-reported, and difficult to verify.
- Formal qualifications (e.g., diplomas, certificates) exist in siloed databases.
- Practical, hands-on skills are rarely quantified or linked to formal credentials.



The Solution: An Integrated, Data-Driven System

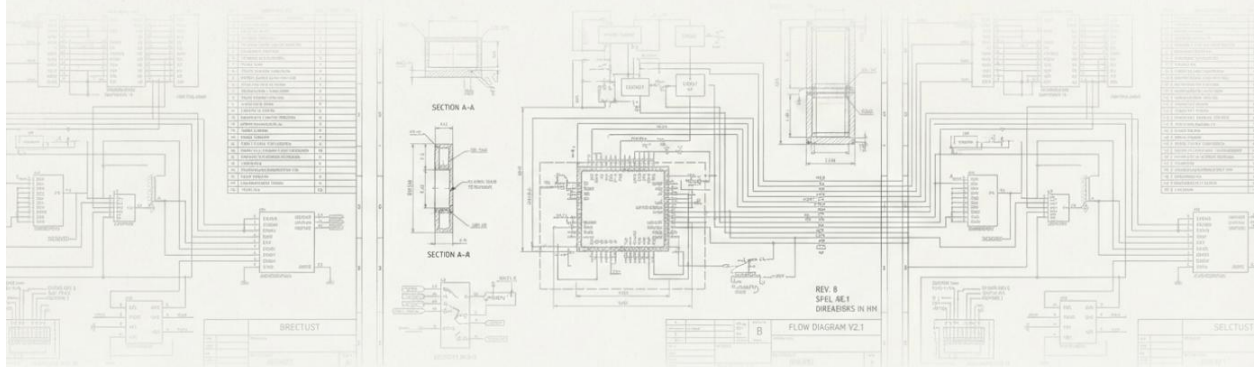
- A modular system that maps every skill, qualification, and experience to a verifiable data point.
- Utilizes a quantitative backbone to measure outcomes, from project costs to energy harvested.
- Generates audit-grade documentation for accreditation bodies like SAQA, AIU, and ASIC.

CONFIDENTIAL - EVIDENCE FILE

NotebookLM

The Audit-Grade Career Engine

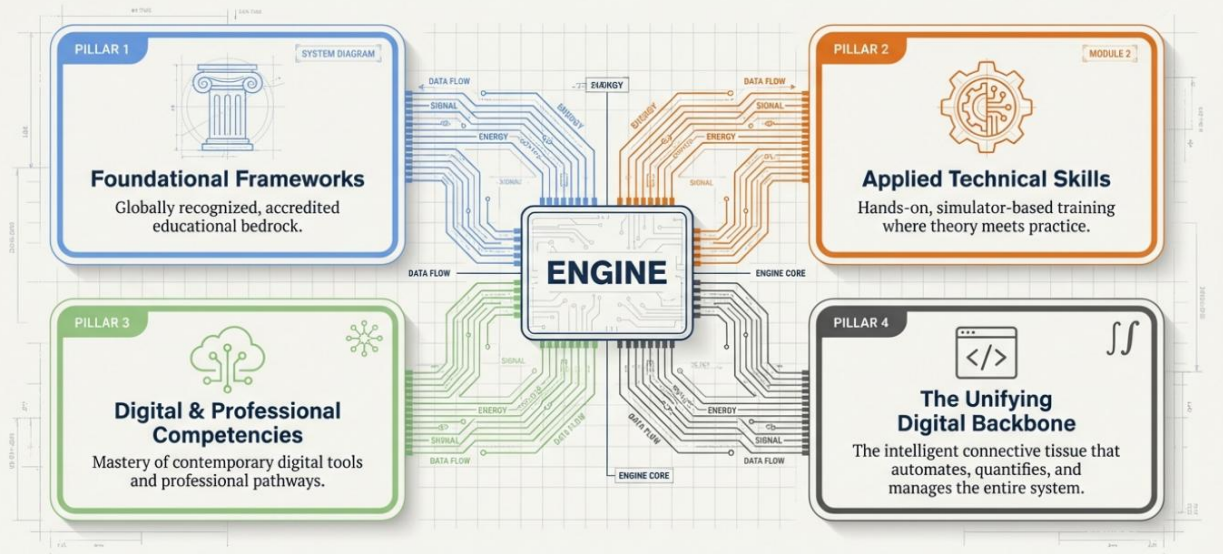
A Blueprint for Verifiable Competence



A modular framework that synthesizes formal education, vocational training, and workplace experience into a single, auditable system.

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The Four Pillars of the Career Engine



Nc NotebookLM

Building on Global Standards and Real-World Diagnostics



Pillar 1: Foundational Frameworks

French Higher Education - Brevet de Technicien Supérieur (BTS)

BTS Électrotechnique - Compétency Block

RNCP41007BC01

Étude et conception préliminaire d'une installation
Preliminary study and design of an installation

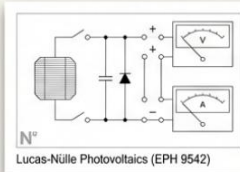
South African Qualifications Authority (SAQA) - National Qualifications Framework (NQF)

NQF Unit Standard Example	
Qualification	National Certificate: Electrical Engineering (ID 72071)
Unit Standard ID	259037
Title	Design and install electrical wire ways
Level	NQF Level 3
Credits	8



Pillar 2: Applied Technical Skills

German Didactic Systems (Lucas-Nülle)



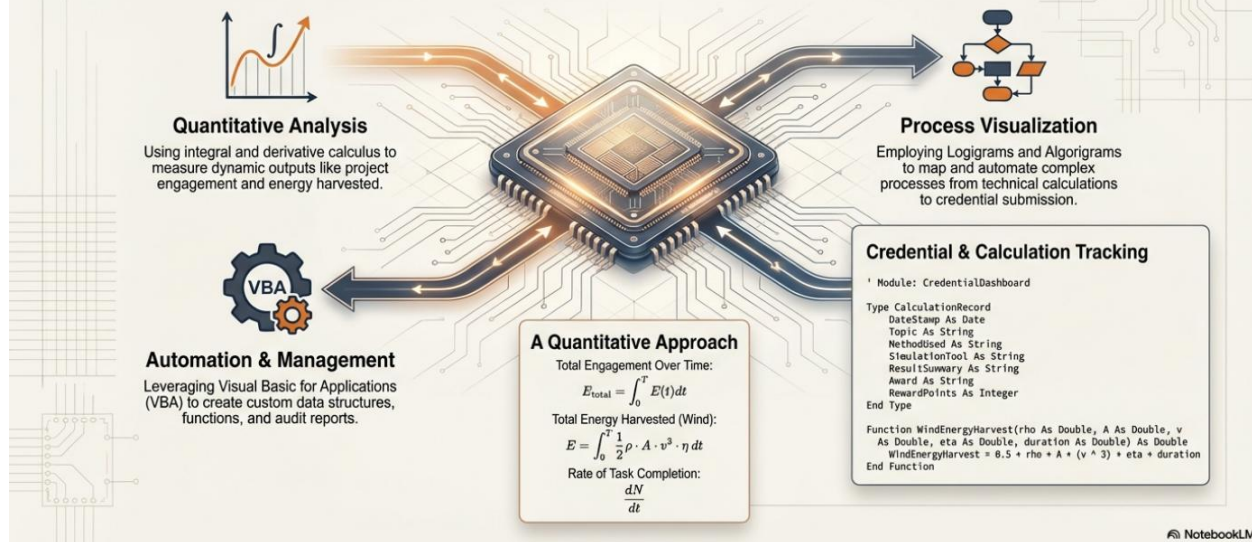
Lucas-Nülle Photovoltaics training module trains system didactic, in scenarios and modules! Its measurements, and measuring instruments with circuit and samplings, protocols, connection and does, and capacitance training system.

Indian Vocational Training (ITI)

NIMI Curriculum: Electrician (NSQF Level 5)	
Module No.	3
Module Title	Wires, Joints - Soldering - U.G. Cables
Allocated Time	125 Hrs

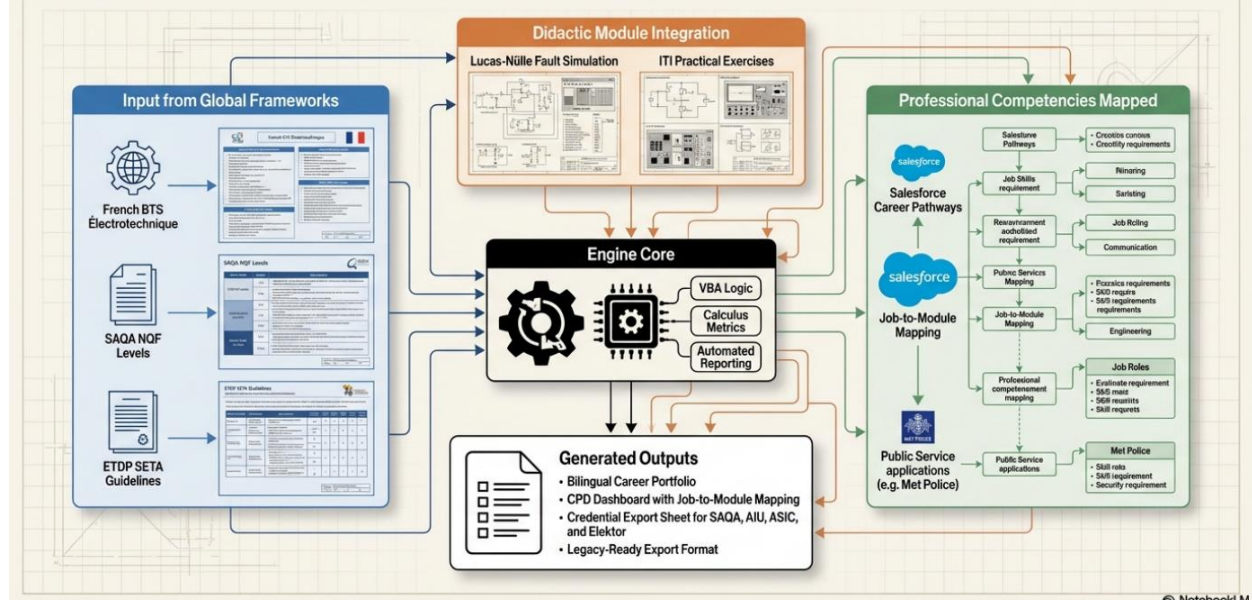
NIMI Curriculum: Electrician (NSQF Level 5) - curriculum wires and connection - soldering and cables for matter matter for consumption, allocation, and technical training.

The Intelligent Connective Tissue: Code, Calculus, and Logic



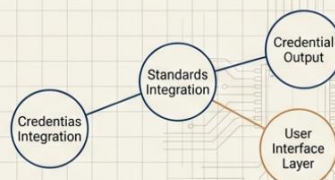
NotebookLM

The Complete Blueprint: A Synthesized Career Dashboard



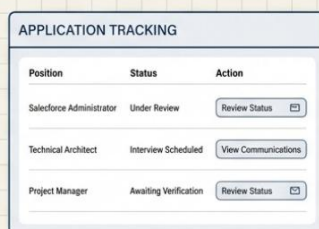
NotebookLM

The Interface Layer: Dashboards, Career Planning, and Applications



Career Development Planning:

The engine powers personalized learning plans. Users can map their skills, identify gaps, and select modules from Trailhead or internal curricula to achieve their goals (e.g., Salesforce Developer, Technical Architect).



Hiring and Promotion:

The system provides a back-end for tracking candidate eligibility and application progress, ensuring all criteria (probation status, security checks, qualifications) are met and verified.

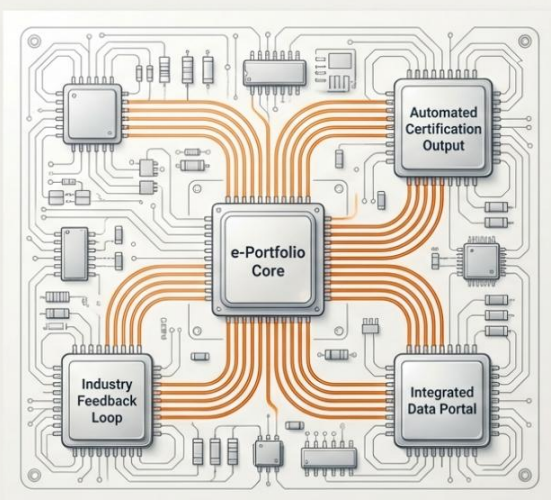


Evidence Locker:

All achievements, from micro-credentials to formal certifications, are logged and linked, creating a comprehensive and verifiable record of a user's capabilities.

NotebookLM

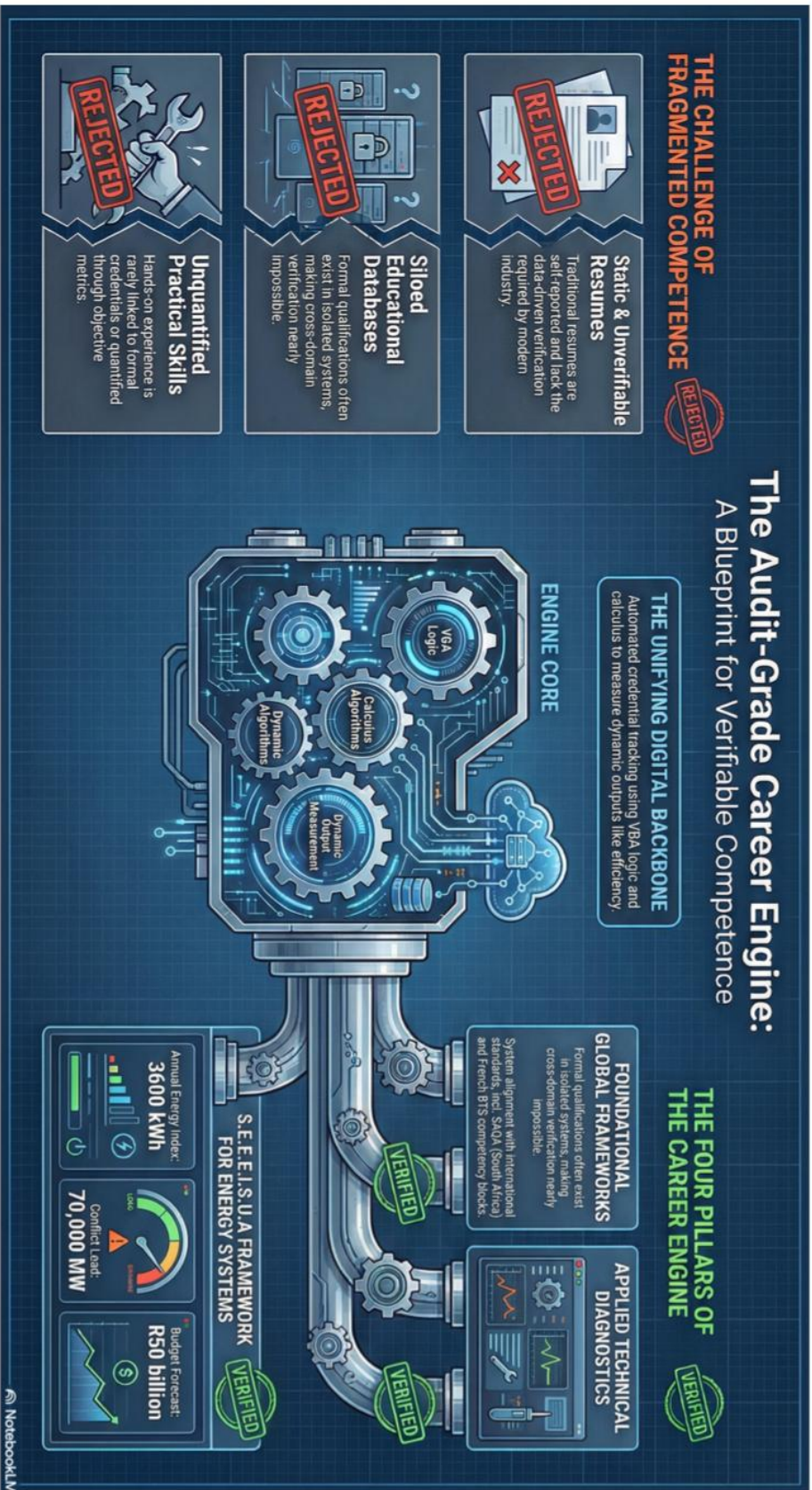
The Result: An Optimized Circuit for Engineering Talent



Key Outcomes of the Proposed Framework:

- ✓ **Improved Graduate Employability:** Professionals equipped with relevant, verified skills.
- ✓ **Strengthened Industry-Academia Partnerships:** A sustainable system for dialogue and collaboration.
- ✓ **Efficient & Credible Qualification System:** The elimination of administrative backlogs and restoration of trust.
- ✓ **Data-Driven Policy & Curriculum:** A framework that provides actionable insights for continuous improvement.

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THE LABYRINTH & THE BLUEPRINT: REFORMING TECHNICAL EDUCATION

THE ADMINISTRATIVE DEADLOCK

THE PROBLEM: A SYSTEM MARKED BY FRICTION AND DELAY

Extreme backlogs in processing results and diplomas create barriers for graduates

THE SILOED CURRICULUM

A significant gap exists between theoretical knowledge and practical, industry-relevant skills.

QUALIFICATION IRREGULARITIES

Inconsistent accreditation and recognition of qualifications lead to disputes and legal challenges.

THE BLUEPRINT: AN INTEGRATED FRAMEWORK FOR VERIFIABLE COMPETENCE

OUTCOME-DRIVEN & INDUSTRY-VALIDATED CURRICULUM

Formal partnerships with industry players define competencies and ensure relevance

TECHNOLOGY-ENABLED ADMINISTRATION

A centralized e-Portfolio system and data portal automate qualification processing and eliminate backlogs

INDUSTRY-INTEGRATED ASSESSMENT

A unified protocol ensures assessments are practical, validated by industry, and transparent.

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The Professional's Lifelong Ledger

This is more than a system; it is a permanent, dynamic, and verifiable record of an individual's accumulated knowledge, practical skill, and innovative contributions. It is the definitive ledger of human potential, realized and proven.



Building the architecture for proven expertise.

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The Challenge of Proving Expertise

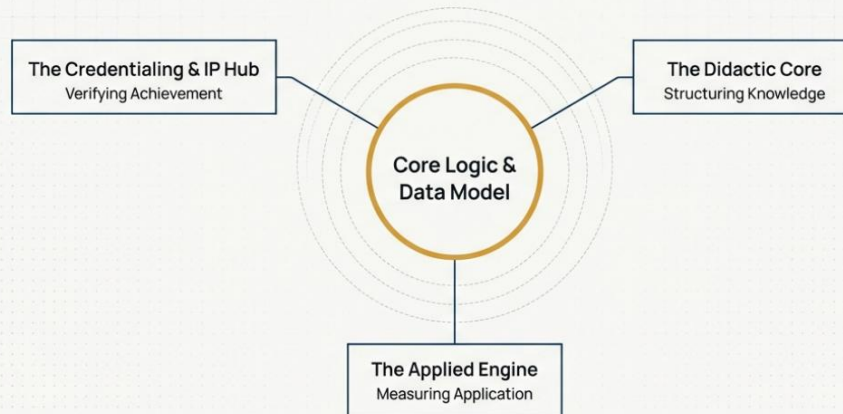
Professionals like Tshingombe Tshitadi possess a wealth of knowledge and experience. However, their achievements are often scattered across disparate documents, certifications, and institutional records, making it difficult to present a unified, verifiable picture of their mastery.



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A Unified Engine for Career Development, Credentialing, and Innovation

An integrated system for structuring knowledge, verifying application, and managing a lifelong professional portfolio. It acts as a career co-pilot, integrating disparate platforms into a single, credential-linked engine.



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An Architecture for Verifiable Human Potential

This system provides a modular, evidence-based foundation for professional development. It connects structured learning with practical application, culminating in verifiable credentials and traceable intellectual property. The platform is built on three interconnected pillars:



Pillar 1: The Didactic Core

How knowledge is structured and acquired through a library of modular, cross-disciplinary curricula.



Pillar 2: The Applied Engine

How knowledge is applied and measured through project-based work, simulations, and quantitative analysis.



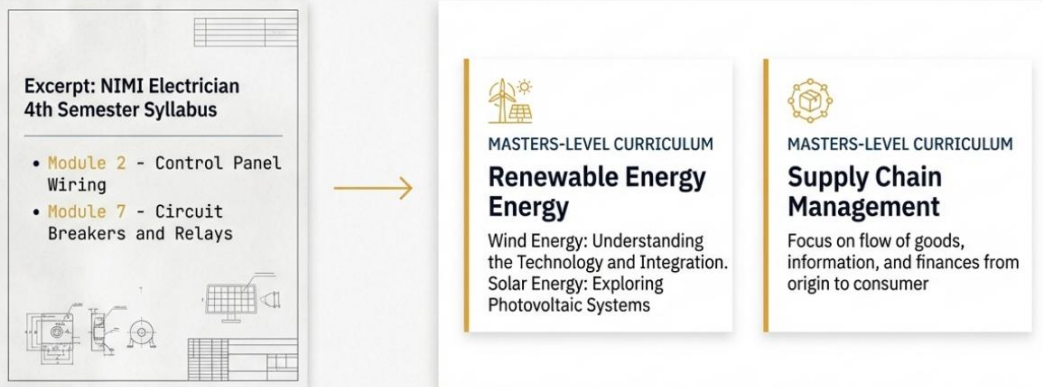
Pillar 3: The Credentialing & IP Hub

How achievement is verified through national frameworks, blockchain certificates, and a structured patent lifecycle.

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Pillar 1: The Didactic Core, A Library of Structured Knowledge

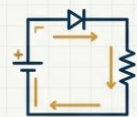
The foundation of the system is a comprehensive library of didactic modules. Each module is structured to map directly to qualifications and professional competencies. We begin by organizing Tshingombe's foundational knowledge from his Electrician Trade Practical syllabus.



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Pillar 2: The Applied Engine, From Theory to Measurable Application

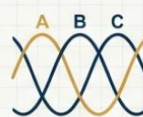
The Applied Engine translates didactic learning into practical, measurable outcomes. The system integrates with hands-on training platforms like the Lucas-Nülle UniTrain and InsTrain systems. Practical skills—from fault simulation in building automation to diagnostics on three-phase systems—are logged, evaluated, and certified.



DC Technology



AC Technology



Three-Phase Technology



KNX Building Automation

```
' Module: UniTrainICredentialTracker
' Purpose: Automate training progress, fault simulation, and credentialing

Type UniTrainTrainee
  Name As String
  CourseCode As String
  FaultsResolved As Integer
  CertificationStatus As String
End Type
```

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The Engine's Source Code: Verifiable Logic in Visual Basic

The system's backend is built on robust, auditable code. These VBA modules automate calculations for everything from renewable energy harvesting to project cost estimation, creating a verifiable record of applied knowledge.

Renewable Energy & Smart Grid Functions

```
' Renewable Energy: Wind Harvest
Function WindEnergyHarvest(rho, A, v, eta, duration) As Double
    WindEnergyHarvest = 0.5 * rho * A * (v ^ 3) * eta * duration
End Function
```

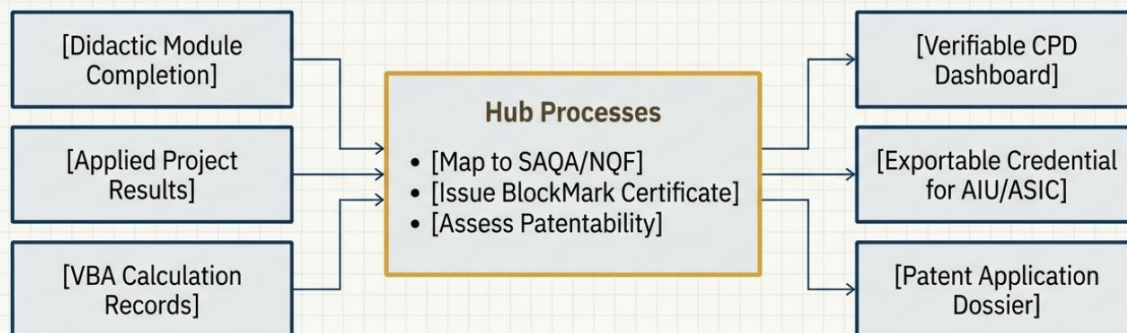
Project Cost Estimation Logic

```
' Estimate Total Project Cost
...
"Human Resource: " & FormatCurrency(entry.HumanResourceCost)
"Material: " & FormatCurrency(entry.MaterialCost)
"Building / Infrastructure: " & FormatCurrency(entry.BuildingCost)
"Total Cost: " & FormatCurrency(EstimateTotalProjectCost(...))
```

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Pillar 3: The Credentialing & IP Hub, Verifying Mastery and Ownership

All structured learning and applied work culminates in the **Credentialing & IP Hub**. This pillar formalizes achievement through interoperable digital certificates, maps competencies to national qualification frameworks, and provides a structured process for managing intellectual property.



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Mapping to National and International Standards

The platform's data model is designed to align with rigorous qualification frameworks. It maps every learning activity and competency to specific unit standards, ensuring full compliance and auditability across borders.

SAQA ID 63790: National Certificate: Electrical Engineering (NQF Level 3, 133 Credits)			French BTS: Professional Activities	Certified Competencies
Component	Unit Standard ID	Title	"Étude - Conception"	"Dimensionner les constituants"
Core	258963	Install, test and maintain electrical equipment...	"Maintenance d'une installation électrique"	"Proposer l'architecture d'un ouvrage"

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The Mechanics of Verification: Blockchain-Ready Credentials

The system integrates with third-party services like BlockMark Technologies to issue secure, verifiable digital certificates. This process supports both expiring (e.g., annual CPD) and non-expiring **credentials**, with options for premium blockchain features to guarantee authenticity.

BlockMark Certificate Issuance Price List (VAT Excl.)

	Item	Price (credits)	Paid for by
1	Issue a certificate with an expiry date	£1 (100) per year	Issuer
2	Issue a non-expiring certificate	£10 (1000)	Issuer
3	Issue a CPD folder with a certificate	£1 (100) per year	Issuer
4	Stamp a hash of an issued certificate on blockchain	£1 (100)*	Issuer

*Coming soon (currently beta-testing with no charge)

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From Research to Asset: A Structured Path to Patentability

Beyond credentials, the hub manages the lifecycle of intellectual property. It aligns with international patent standards, tracking research methodology and assessing inventions against key criteria to create an audit-ready trail for patent applications.

Patentability Criteria

- 

1. **Novelty:** Not publicly disclosed before filing.
- 

2. **Utility:** Must function and serve a useful purpose.
- 

3. **Inventive Step:** Not obvious to a skilled professional in the field.

Reference: 'URFIST Paris' patent tutorials and 'Espacenet' database for prior art searches.

VBA Logic for Patent Tracking

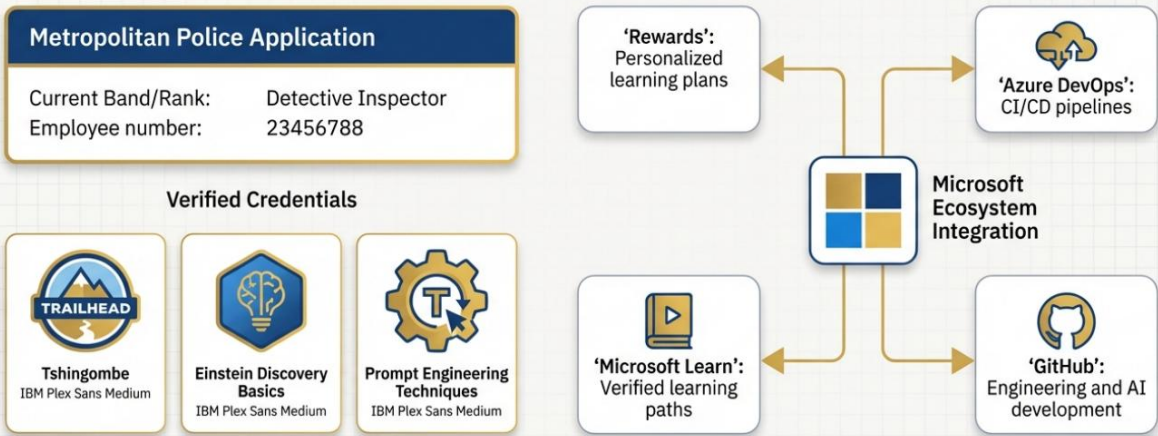
```
' Module: Research and Patent Lifecycle Tracker

Type ResearchPatentProject
ProjectID As String
PatentNovelty As Boolean
PatentUtility As Boolean
PatentInventiveStep As Boolean
End Type
```

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Tshingombe's Integrated Career Engine

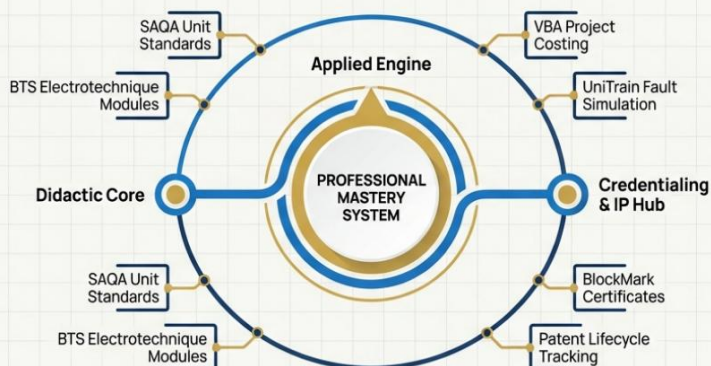
The system is designed to be a lifelong career co-pilot. For a professional like Tshingombe, it integrates disparate platforms into a single, credential-linked engine, supporting everything from job applications to advanced engineering certifications.



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A Complete System of Systems for Professional Mastery

By integrating the Didactic Core, Applied Engine, and Credentialing Hub, the platform creates a closed-loop system for continuous development. Every skill learned is applied, every application is measured, and every achievement is verifiably certified.



Key Value Propositions

- **Audit-Grade Traceability:** From lesson plan to final credential.
- **Integrated Learning:** Seamlessly connecting theory, simulation, and practice.
- **Verifiable Credentials:** Portable, secure, and mapped to global standards.
- **Lifelong Portfolio Management:** A dynamic record of career achievement and innovation.

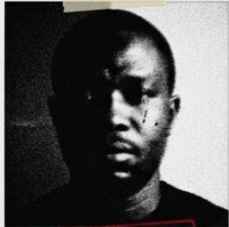
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THE TSHINGOMBE DOSSIER

AN EVIDENTIARY REVIEW OF MULTIDISCIPLINARY
EXPERTISE AND SYSTEMIC INSTITUTIONAL FAILURE

CASE REFERENCE:
TSH-2024-EE-SA-UK

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SUBJECT IDENTIFICATION



BUREAUCRATIC OBSTRUCTION



EVIDENCE OF INJUSTICE

A Case of Unrecognized Potential and Persistent Systemic Obstruction

This presentation compiles and analyzes a comprehensive body of evidence submitted by **Fiston Tshitadi Tshingombe**. The documents detail the career of a highly skilled technologist with deep, cross-domain expertise in Electrical Engineering, Law Enforcement, and Information Technology.

The evidence is presented in three parts:

- 📁 **Exhibit A: The Technologist**
A review of his qualifications, practical skills, and advanced project work.
- 📁 **Exhibit B: The Labyrinth**
An examination of the fragmented and unresponsive educational and legal systems he has navigated.
- 📁 **Exhibit C: The Grievances**
A detailed account of specific professional and legal injustices.

CASE FILE NO: FT-001-INVESTIGATION

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Exhibit A: The Technologist

Evidence of Profound Technical and Cross-Disciplinary Expertise.

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Deep Expertise in Electrical Engineering: Theory and Application



Power Systems & Grid Management

Power grid calculation: $P = V \times I \times \cos \phi$, $S = P + jQ$

Fault analysis: "calculation impedance of power source... fault at A(HV busbars)... fault at B LV base"

Load management: "Demand factor = maximum dem/ connected", "Load factor = average load / maximum load"

Instrumentation: "Landis and gyr trivestgor karh meter," "single phase induction watt hour meter"



Electronics & Control Systems

PLC Configuration: Schneider Electric Modicon PLC, Configuration ID: 607079d9-fa26-423a-9d8c-d810df173a87

Circuit Design: "panel wiring," "switchgears," "relay trip circuit"

Component Knowledge: "Peltier elements," "transformer voltage regulations," "synchronous machines"



Digital & Security Protocols

Network Security: "secure network programming," "ssl ,1.0,2.0 and 3.0," "TLS 1.0,,TLS 1.1"

Cybersecurity concepts: "Renegoty attack," "downgrade attack ,freak attack and log attack"

CASE FILE NO: FT-001-INVESTIGATION

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APPLIED RESEARCH: ENGINEERING FOR SOCIO-ECONOMIC DEVELOPMENT

PROJECT 1: PROPOSAL FOR RURAL ELECTRIFICATION IN AFRICA

ABSTRACT:

residential sector RSA purpose grid and off gride electrification 50 watt, solar home system SHS consumer size produce 0,3 to 0,4:kWh of electricity per day even under solar best electricity energy.

SCOPE:

Backllig of 3.4 million household electrified.

TECHNICAL BASIS:

NASA data used RSA Google renewable grid, Plasma dynamic generator electrode discontinue.

PROJECT 2: NATIONAL SKILL & RESEARCH FUND (NSF) CAREER PROPOSAL

OBJECTIVE:

Framework qualacation experimental career learner work of work and labour of labour learner based.

ELIGIBILITY:

engineering electrical master and education technology,education technical education engineering field.

BUDGET:

minimum budget : 4000.00000 total program officer except salary.

CASE FILE NO: FT-001-INVESTIGATION

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CROSS-DOMAIN COMPETENCY: LAW ENFORCEMENT AND SECURITY OPERATIONS

CRIMINAL INVESTIGATION (CID)

"duty ,goal and function of the Cid,"
"crime investy,"
"statement : theory ,pratick,"
"informers,"
"finger prints theory praticaj."

FIREARMS & MUSKETRY

"Care maintenance: 9mm Beretta
pistol, 9 mm Walther P38, R # rifle."

CORE COMPETENCIES

VISUAL & PATROL POLICING

"Phylosophie of patrols,"
"attending to complain,"
"roadblock and searching of vehicle
occupants,"
"testifying Nd conduct in court."

SPECIALIST SKILLS

"Counter intelligence course,"
"road traffic management,"
"conduct asset in transit vehicle operation,"
"apply advanced driving skills."

LEGAL FRAMEWORK

"police acts regulation,"
"power of arresting person,"
"righth of accused."

CASE FILE NO:
FT-001-INVESTIGATION

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A PORTFOLIO OF CONTINUOUS PROFESSIONAL DEVELOPMENT

A commitment to lifelong learning is evidenced by a record of ongoing training and certifications in modern technology fields.



Microsoft l'd MCC. : 99537175
azure Dev op .l'd,' 'VSS,
engineering data portal -
TrackingID#2403110060003192,'
'Microsoft Learn AI Skills
Challenge.'



Google database Google
account,'
ID:3388000000022260070,'
'Cloud Google education.'



ID: 31136901,' 'diploma in ms
project for civil engineering
94%,' 'diploma in electrical
engineering in theory,' 'diploma
in solar energy engineering.'



ID / 607079d-f26-423a-
9d8c-d810df173a87,'
'Bill PLC configuration mort
tech expert tech
documentation.'

CASE FILE NO:
FT-001-INVESTIGATION

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EXHIBIT B: THE LABYRINTH

Documenting the Navigation of Fractured
and Unresponsive Systems.

CASE FILE NO:
FT-001-INVESTIGATION

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A SYSTEMIC MAP OF INSTITUTIONAL ENGAGEMENT



CASE FILE NO:
FT-001-INVESTIGATION

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THE PROLONGED STRUGGLE FOR QUALIFICATION RECOGNITION AND ISSUANCE

A multi-year effort to resolve examination and certification discrepancies for the National Diploma in Electrical Engineering (N1-N6). The evidence points to systemic failures in assessment, result processing, and diploma issuance.

EVIDENCE LOG	
ISSUE	SUPPORTING DOCUMENTATION
Allegation of examination irregularity.	" <u>allegation irregularity letter</u> ," " <u>statement sworn affidavit</u> ," " <u>record transcription irregularity</u> ."
Formal complaints and appeals.	" <u>incidence report resolve complain</u> ," " <u>letter complain practical experience appeal statei result award</u> ."
Systemic Failure: Lack of final certification.	" <u>result 202311 release ,pass all subject letter qualificat</u> ," " <u>no printed diploma</u> ."
Bureaucratic Impasse: Conflicting institutional responses.	" <u>framework adaptative : management and educational high college no agree saqa official grade statement 1 the degree</u> ."

CASE FILE NO:
FT-001-INVESTIGATION

Exhibit C: The Grievances

Specific Case Files of Professional and Legal Disputes.

CASE FILE: NOGADA SECURITY DISMISSAL AND CCMA REVIEW

CASE SUMMARY

Dispute arising from dismissal while employed as an Inspector. The matter proceeded through the CCMA and Labour Court, involving requests for clearance from PSIRA and the national bargaining council.

KEY CASE IDENTIFIERS

- Labour Court: JR 2461/15, JA 37/@9
- CCMA: GAEK 6068, EGAEK0222008041

OFFICIAL OUTCOME

please note that court order that we have in our records state that the review was dismiy that simply means the judge agree with ruling of the commissioner

— Lerato Mhlana, CCMA correspondence

ASSOCIATED ISSUES

'nogada figtgi exam with gun for trade theory and authory public'

CASE FILE NO:
NG-2015-CCMA-REVIEW

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CASE FILE: UNRESOLVED PENSION FUND COMPLAINT



Office of the Pension Funds Adjudicator

PARTIES INVOLVED:

Complainant: T. Tshingombe

Respondents: Private Security Sector Provident Fund,
Salt Employee Benefits (Pty) Ltd,
Nogada Security

FORUM:

Office of the Pension Funds Adjudicator

OFFICIAL REFERENCE:

GP\ 00096285\2023

STATUS:

Awaiting resolution. An official request for further information was sent to Mr. Tshingombe on 22 March 2023 to enable the investigation to proceed, indicating a stalled process.

CASE FILE NO:
NG-2023-OPFA-COMPLAINT

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A PATTERN OF ENGAGEMENT MET WITH SYSTEMIC DEFLECTION



SOUTH AFRICAN HUMAN RIGHTS COMMISSION (SAHRC)

Action:
Submission of a formal complaint regarding labour rights.

Incident Date:
14/07/2023

Summary:
"right labour right argument. Mandatory public constitution low legislation rules matter right outcome."

SUBMISSION RECEIVED - SAHRC



UK METROPOLITAN POLICE

Action:
Multiple online submissions and a Freedom of Information (FOI) request.

Submission Ref:
cnr - 50615-23-0100-00 (re: 'criminal ent exam time table cyber criminal hing jack')

FOI Ref:
01/FOI/24/040452/M

> "I have decided that in accordance with section 8 of the freedom of informat act 2000 act your enquiry is not consider a valid request... I am unable to ascertain what information you are seeking"

FOI REQUEST REJECTED - MET POLICE

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THE DOSSIER'S CONCLUSION: A CASE OF COMPOUNDED SYSTEMIC FAILURE

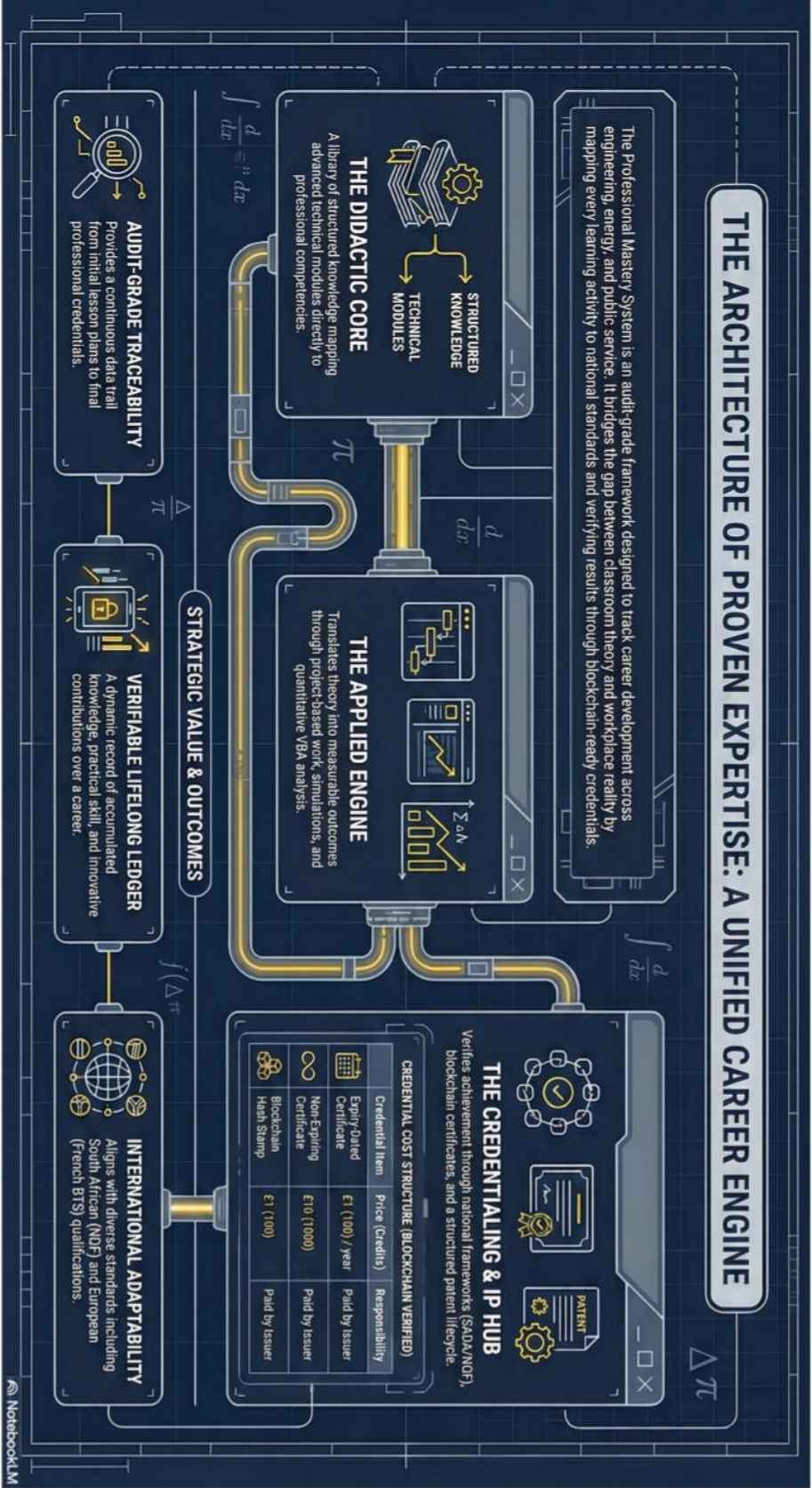
Synthesis of Evidence

- The evidence establishes Mr. Tshingombe as a technologist with rare, deep, and verifiable expertise across multiple critical sectors (**Exhibit A**).
- His pursuit of professional advancement has been systematically blocked by a labyrinth of disjointed, unresponsive educational and legal bodies (**Exhibit B**).
- Specific, documented grievances, from employment disputes to qualification blockages, remain unresolved despite persistent, formal attempts at redress (**Exhibit C**).

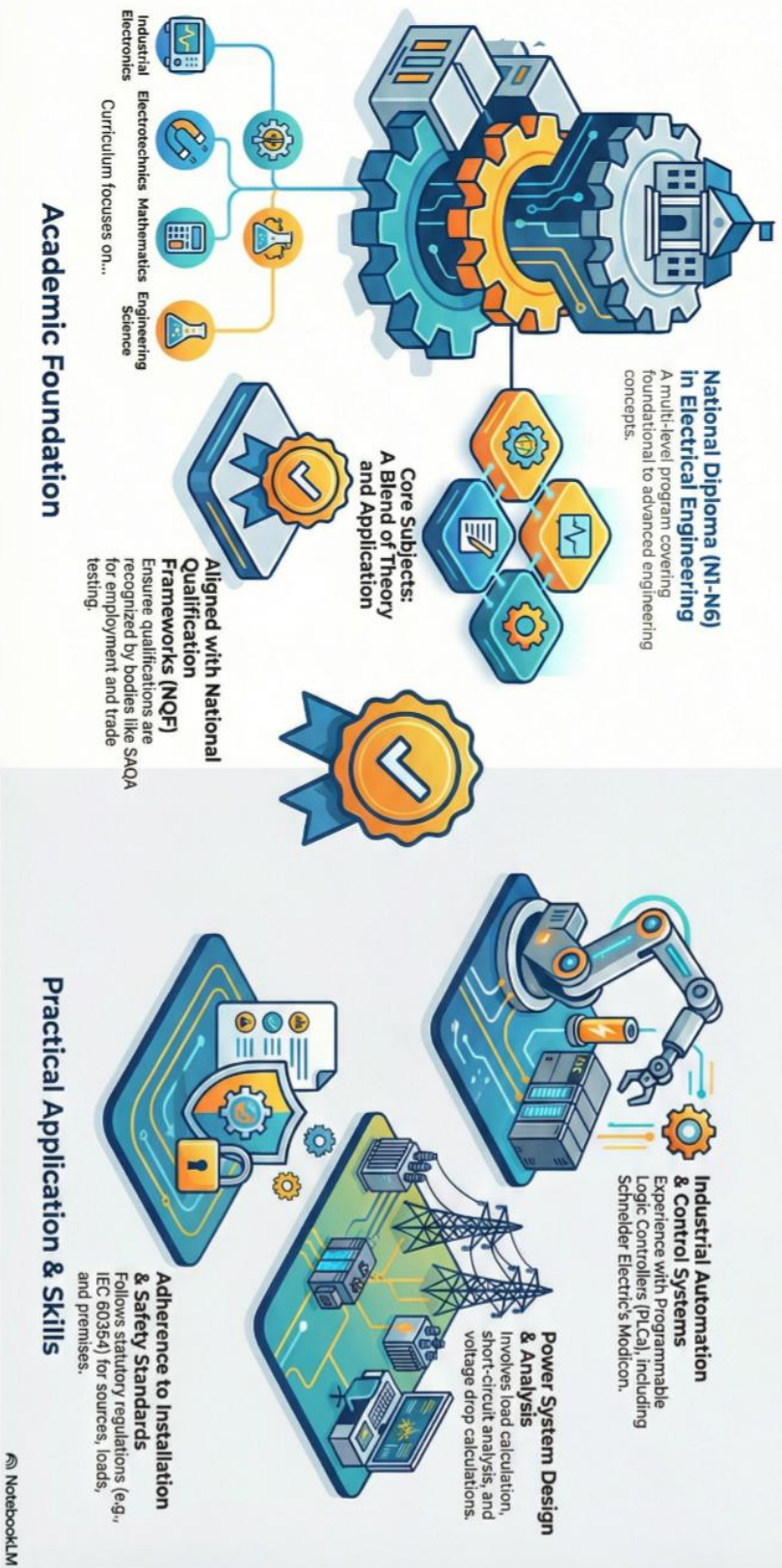
The **Tshingombe Dossier** is more than the story of one individual. It is a stark illustration of how systemic friction and institutional inertia can effectively neutralize highly qualified, motivated, and valuable human capital, at a significant cost to both the individual and society.



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The Electrical Engineering Career Pathway



Technology on the Front Lines: Engineering Solutions for Public Safety & Justice

MODERNIZING LAW ENFORCEMENT & LEGAL SYSTEMS



Developing Web-Based Crime Management Systems

To replace manual, paper-based processes for reporting and managing crime records.



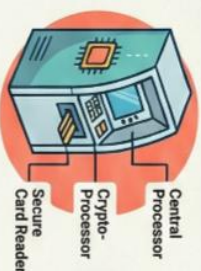
Digitizing the Justice System

Managing legal cases like domestic violence protection orders through online applications.



Core Focus Areas for Police Modernization

Includes applied policing, crime resolution, 'traffic management', and community communication skills.



Building Secure ATM Systems

Key components include a central processor, crypto-processor, and secure card reader.



Designing Three-Phase Smart Power Meters

Integrates MCUs, GPRS modules, and tamper detection for accurate and secure energy metering.



Automating Industrial Controls with PLCs

Involves programming commands to read from and write data to PLCs for system management.

ENGINEERING SECURE INFRASTRUCTURE

```

<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Professional Profile: Tshingombe Tshitadi</title>
  <script src="https://cdn.tailwindcss.com"></script>
  <script src="https://cdn.jsdelivr.net/npm/chart.js"></script>
  <link
href="https://fonts.googleapis.com/css2?family=Roboto:wght@300;400;700;900&displa
y=swap" rel="stylesheet">
  <style>
    body {
      font-family: 'Roboto', sans-serif;
      background-color: #f3f4f6; /* gray-100 */
      color: #1f2937; /* gray-800 */
    }
    /* Chart Container Utilities */
    .chart-container {
      position: relative;
      width: 100%;
      max-width: 600px;
      height: 350px; /* Base height */
      max-height: 400px;
      margin-left: auto;
      margin-right: auto;
    }
    @media (min-width: 768px) {
      .chart-container {
        height: 400px;
      }
    }
    /* Custom Timeline Styles (No SVG) */
    .timeline-point {
      width: 20px;
      height: 20px;
      border-radius: 50%;
      background-color: #06b6d4; /* cyan-500 */
      border: 4px solid #fff;
      position: absolute;
      left: -10px;
      top: 0;
      z-index: 10;
    }
    .timeline-line {

```

```

        position: absolute;
        left: 0;
        top: 0;
        bottom: 0;
        width: 2px;
        background-color: #d1d5db; /* gray-300 */
    }
</style>
<!--
    Palette Selection: Vibrant Tech
    Primary: #3730a3 (Indigo 800)
    Secondary: #06b6d4 (Cyan 500)
    Accent: #f97316 (Orange 500)
-->
<!--
    Narrative Plan:
    1. Intro: Establish Tshitadi as a technical professional bridging
engineering and policy.
    2. Stats: Quick quantitative overview of his footprint.
    3. Skills Radar: Visualize the multi-disciplinary nature (Security +
Engineering + Edu).
    4. Research Topics (Doughnut): Show what he actually writes about.
    5. Timeline: Chronological flow of his career and education.
    6. Keyword Analysis (Bar): Data-driven look at his vocabulary/focus.
-->
<!--
    Visualizations:
    1. Radar Chart (Chart.js): Skills Matrix.
    2. Doughnut Chart (Chart.js): Research Themes.
    3. Bar Chart (Chart.js): Keyword Frequency.
    4. Timeline: HTML/CSS.
    NO SVG USED. NO MERMAID USED.
-->
</head>
<body class="bg-gray-50">

    <!-- Hero Section -->
    <header class="bg-indigo-900 text-white pt-16 pb-12 px-4 shadow-xl">
        <div class="max-w-6xl mx-auto grid grid-cols-1 md:grid-cols-3 gap-8
items-center">
            <div class="md:col-span-2">
                <div class="inline-block bg-orange-500 text-xs font-bold px-3 py-
1 rounded-full uppercase tracking-wide mb-4">Professional Profile</div>
                <h1 class="text-4xl md:text-6xl font-black mb-4 leading-
tight">Tshingombe Tshitadi</h1>

```

```

        <p class="text-xl text-cyan-200 font-light">Engineering •
Security Systems • Education Policy</p>
        <p class="mt-6 text-indigo-100 max-w-2xl leading-relaxed">
            An in-depth data visualization of a multi-faceted career
            bridging technical electrical engineering, security framework analysis, and
            socio-economic development advocacy. This infographic synthesizes data from
            public portfolios, parliamentary submissions, and academic research.
        </p>
    </div>
    <div class="flex justify-center md:justify-end">
        <div class="bg-white/10 backdrop-blur-sm p-6 rounded-xl border
border-white/20 text-center">
            <div class="text-5xl mb-2"></div>
            <div class="text-sm font-bold uppercase tracking-wider">Focus
Area</div>

            <div class="text-2xl font-bold text-orange-400">Systems &
Policy</div>
        </div>
    </div>
</div>
</header>

<main class="max-w-6xl mx-auto px-4 py-12 space-y-16">

    <!-- Section 1: At a Glance (Inform) -->
    <section>
        <div class="mb-8">
            <h2 class="text-3xl font-bold text-indigo-900 border-l-8 border-
cyan-500 pl-4">Professional Snapshot</h2>
            <p class="mt-2 text-gray-600">A high-level quantitative overview
of Tshitadi's professional footprint and academic engagement.</p>
        </div>

        <div class="grid grid-cols-1 md:grid-cols-3 gap-6">
            <!-- Card 1 -->
            <div class="bg-white p-8 rounded-xl shadow-lg border-t-4 border-
orange-500 hover:shadow-xl transition-shadow">
                <div class="flex justify-between items-start">
                    <div>
                        <p class="text-gray-500 font-medium uppercase text-
sm">Experience Scope</p>
                        <h3 class="text-5xl font-black text-indigo-900 mt-
2">12+</h3>
                        <p class="text-cyan-600 font-medium mt-1">Years
Documented</p>

```

```

        </div>
        <span class="text-4xl">🏠</span>
    </div>
    <p class="mt-4 text-sm text-gray-500">Spanning Security,
Engineering, and Education sectors.</p>
</div>

<!-- Card 2 -->
<div class="bg-white p-8 rounded-xl shadow-lg border-t-4 border-
cyan-500 hover:shadow-xl transition-shadow">
    <div class="flex justify-between items-start">
        <div>
            <p class="text-gray-500 font-medium uppercase text-
sm">Key Domains</p>
            <h3 class="text-5xl font-black text-indigo-900 mt-
2">4</h3>
            <p class="text-orange-500 font-medium mt-1">Core
Pillars</p>
        </div>
        <span class="text-4xl">🏢</span>
    </div>
    <p class="mt-4 text-sm text-gray-500">Engineering, Security,
Research, & Public Policy.</p>
</div>

<!-- Card 3 -->
<div class="bg-white p-8 rounded-xl shadow-lg border-t-4 border-
indigo-500 hover:shadow-xl transition-shadow">
    <div class="flex justify-between items-start">
        <div>
            <p class="text-gray-500 font-medium uppercase text-
sm">Engagement</p>
            <h3 class="text-5xl font-black text-indigo-900 mt-
2">High</h3>
            <p class="text-indigo-600 font-medium mt-1">Public
Activity</p>
        </div>
        <span class="text-4xl">🏛️</span>
    </div>
    <p class="mt-4 text-sm text-gray-500">Active submissions to
Parliament on Innovation & Education.</p>
</div>
</div>
</section>

```



```

    <!-- Section 2: Competency Matrix (Compare) -->
    <section class="grid grid-cols-1 md:grid-cols-2 gap-12 items-center bg-white p-8 rounded-2xl shadow-sm">
        <div>
            <h2 class="text-3xl font-bold text-indigo-900 border-1-8 border-orange-500 p1-4 mb-4">Competency Matrix</h2>
            <p class="text-gray-600 mb-6 leading-relaxed">
                Analyzing the diverse document titles and roles held by Tshingombe Tshitadi reveals a unique blend of "Hard" and "Soft" skills. While rooted in <strong>Electrical Engineering</strong> and <strong>Security Systems</strong>, a significant portion of his output demonstrates expertise in <strong>Academic Research</strong> and <strong>Policy Advocacy</strong>.
            </p>
            <div class="space-y-4">
                <div class="flex items-center">
                    <span class="w-8 text-2xl">🔧</span>
                    <div class="ml-4 flex-1">
                        <h4 class="font-bold text-gray-800">Engineering & Technical</h4>
                        <p class="text-sm text-gray-500">Electrical assessment, Panel theory, Design.</p>
                    </div>
                </div>
                <div class="flex items-center">
                    <span class="w-8 text-2xl">🛡️</span>
                    <div class="ml-4 flex-1">
                        <h4 class="font-bold text-gray-800">Security & Safety</h4>
                        <p class="text-sm text-gray-500">Access control, Identity management, PSIRA.</p>
                    </div>
                </div>
                <div class="flex items-center">
                    <span class="w-8 text-2xl">🎓</span>
                    <div class="ml-4 flex-1">
                        <h4 class="font-bold text-gray-800">Policy & Education</h4>
                        <p class="text-sm text-gray-500">Curriculum development, Legislative submissions.</p>
                    </div>
                </div>
            </div>
        </div>
        <div class="bg-gray-50 rounded-xl p-4 border border-gray-100">

```

```

        <div class="chart-container">
            <canvas id="skillsRadar"></canvas>
        </div>
        <p class="text-center text-xs text-gray-400 mt-2">Relative skill
emphasis based on portfolio content analysis</p>
    </div>
</section>

<!-- Section 3: Research Themes (Organize) -->
<section>
    <div class="grid grid-cols-1 md:grid-cols-3 gap-8">
        <div class="md:col-span-1">
            <h2 class="text-3xl font-bold text-indigo-900 border-1-8
border-cyan-500 pl-4 mb-4">Thematic Focus</h2>
            <p class="text-gray-600 mb-4">
                A breakdown of the primary subjects found within his
thesis work and professional portfolio. The data indicates a strong inclination
towards the intersection of <strong>Technology</strong> and <strong>Social
Development</strong>.
            </p>
            <ul class="space-y-3 mt-6">
                <li class="flex items-center text-sm font-medium text-
gray-700">
                    <span class="w-3 h-3 rounded-full bg-indigo-600 mr-
2"></span> Engineering & Systems (35%)
                </li>
                <li class="flex items-center text-sm font-medium text-
gray-700">
                    <span class="w-3 h-3 rounded-full bg-cyan-500 mr-
2"></span> Education Technology (25%)
                </li>
                <li class="flex items-center text-sm font-medium text-
gray-700">
                    <span class="w-3 h-3 rounded-full bg-orange-500 mr-
2"></span> Security & Integrity (20%)
                </li>
                <li class="flex items-center text-sm font-medium text-
gray-700">
                    <span class="w-3 h-3 rounded-full bg-gray-400 mr-
2"></span> Socio-Econ Policy (20%)
                </li>
            </ul>
        </div>
        <div class="md:col-span-2 bg-white p-6 rounded-xl shadow-md">
            <div class="chart-container">

```

```

        <canvas id="themesDoughnut"></canvas>
      </div>
    </div>
  </div>
</section>

<!-- Section 4: Timeline (Change) -->
<section class="bg-indigo-900 text-white rounded-2xl p-8 md:p-12 shadow-2xl">
  <div class="mb-12 text-center">
    <h2 class="text-3xl md:text-4xl font-black mb-4">Academic & Career Trajectory</h2>
    <p class="text-indigo-200 max-w-2xl mx-auto">From foundational engineering studies in the DRC to advanced policy engagement in South Africa, Tshitadi's journey reflects continuous professional development.</p>
  </div>

  <div class="relative max-w-4xl mx-auto pl-8 md:pl-0">
    <!-- Vertical Line -->
    <div class="hidden md:block absolute left-1/2 top-0 bottom-0 w-1 bg-indigo-700 transform -translate-x-1/2"></div>
    <div class="md:hidden absolute left-4 top-0 bottom-0 w-1 bg-indigo-700"></div>

    <!-- Item 1: Early Foundation -->
    <div class="relative mb-12 md:flex justify-between items-center w-full">
      <div class="md:w-5/12 md:text-right mb-4 md:mb-0 pr-8">
        <div class="bg-white text-indigo-900 p-4 rounded-lg shadow-lg inline-block md:inline-block w-full">
          <span class="font-bold text-orange-500 text-sm tracking-widest block mb-1">FOUNDATION</span>
          <h3 class="font-bold text-lg">Electrical Engineering</h3>
          <p class="text-sm text-gray-600 mt-1">University of Kinshasa (UNIKIN)</p>
          <p class="text-xs text-gray-500 mt-2">Core theories, Panel assessment, Trade theory.</p>
        </div>
      </div>
      <div class="absolute left-4 md:left-1/2 transform -translate-x-1/2 w-8 h-8 rounded-full bg-orange-500 border-4 border-indigo-900 z-10 flex items-center justify-center">
        <span class="text-white text-xs">🎓</span>
      </div>
    </div>
  </div>

```

```

        <div class="md:w-5/12 pl-8"></div>
    </div>

    <!-- Item 2: Career Expansion -->
    <div class="relative mb-12 md:flex justify-between items-center
w-full flex-row-reverse">
        <div class="md:w-5/12 mb-4 md:mb-0 pl-8">
            <div class="bg-indigo-800 text-white p-4 rounded-lg
border border-indigo-600 w-full">
                <span class="font-bold text-cyan-400 text-sm
tracking-widest block mb-1">PROFESSIONAL</span>
                <h3 class="font-bold text-lg">Security
Engineering</h3>
                <p class="text-sm text-indigo-200 mt-1">Various
Private & Public Roles</p>
                <p class="text-xs text-indigo-300 mt-2">Access
Control, Identity Management, Systems Analysis.</p>
            </div>
        </div>
        <div class="absolute left-4 md:left-1/2 transform -translate-
x-1/2 w-8 h-8 rounded-full bg-cyan-500 border-4 border-indigo-900 z-10 flex
items-center justify-center">
            <span class="text-white text-xs">♡</span>
        </div>
    </div>
    <div class="md:w-5/12 pr-8"></div>
</div>

    <!-- Item 3: Advanced Research -->
    <div class="relative mb-12 md:flex justify-between items-center
w-full">
        <div class="md:w-5/12 md:text-right mb-4 md:mb-0 pr-8">
            <div class="bg-white text-indigo-900 p-4 rounded-lg
shadow-lg w-full">
                <span class="font-bold text-orange-500 text-sm
tracking-widest block mb-1">ADVANCED STUDY</span>
                <h3 class="font-bold text-lg">Masters / Doctorate
Research</h3>
                <p class="text-sm text-gray-600 mt-1">Atlantic
International University (AIU)</p>
                <p class="text-xs text-gray-500 mt-2">Thesis on Rural
Energy, Integrity Science, and Educational Frameworks.</p>
            </div>
        </div>
    </div>

```

```

        <div class="absolute left-4 md:left-1/2 transform -translate-
x-1/2 w-8 h-8 rounded-full bg-orange-500 border-4 border-indigo-900 z-10 flex
items-center justify-center">
            <span class="text-white text-xs">🏠</span>
        </div>
        <div class="md:w-5/12 pl-8"></div>
    </div>

    <!-- Item 4: Policy Engagement -->
    <div class="relative md:flex justify-between items-center w-full
flex-row-reverse">
        <div class="md:w-5/12 pl-8">
            <div class="bg-cyan-600 text-white p-4 rounded-lg shadow-
lg w-full">
                <span class="font-bold text-indigo-900 text-sm
tracking-widest block mb-1">IMPACT (2023-Present)</span>
                <h3 class="font-bold text-lg">Parliamentary
Engagement</h3>
                <p class="text-sm text-cyan-100 mt-1">South
Africa</p>
                <p class="text-xs text-cyan-100 mt-2">Submissions to
Dept. of Science & Innovation regarding socio-economic development.</p>
            </div>
        </div>
        <div class="absolute left-4 md:left-1/2 transform -translate-
x-1/2 w-8 h-8 rounded-full bg-white border-4 border-indigo-900 z-10 flex items-
center justify-center">
            <span class="text-indigo-900 text-xs">🏛️</span>
        </div>
        <div class="md:w-5/12 pr-8"></div>
    </div>
</div>
</section>

<!-- Section 5: Keyword Frequency (Relationships) -->
<section>
    <div class="mb-6">
        <h2 class="text-3xl font-bold text-indigo-900 border-1-8 border-
indigo-500 pl-4">Lexical Analysis</h2>
        <p class="mt-2 text-gray-600">
            A frequency analysis of terms used in document titles and
portfolio entries reveals the specific technical language and methodologies
Tshitadi prioritizes.
        </p>
    </div>

```



```

    <div class="bg-white p-6 rounded-xl shadow-md">
      <div class="chart-container">
        <canvas id="keywordBar"></canvas>
      </div>
    </div>
  </section>

  <!-- Footer -->
  <footer class="bg-gray-200 rounded-2xl p-8 text-center mt-12">
    <h3 class="text-xl font-bold text-indigo-900 mb-2">Summary</h3>
    <p class="text-gray-600 max-w-2xl mx-auto mb-6">
      Tshingombe Tshitadi represents a modern synthesis of technical
      engineering and social responsibility. His work moves beyond theoretical design
      into the practical realms of policy implementation, security integrity, and
      educational reform, aiming for sustainable socio-economic development.
    </p>
    <div class="flex justify-center space-x-4 text-2xl opacity-60">
      <span>✂</span>
      <span>ZA</span>
      <span>CD</span>
      <span>🇳🇮</span>
    </div>
    <p class="text-xs text-gray-400 mt-8">Generated based on available
    public portfolio data.</p>
  </footer>

</main>

<script>
  // --- UTILITY FUNCTIONS ---

  // 1. Label Wrapping Function (Splits long strings into arrays for
  Chart.js)
  function wrapLabel(str, maxLen) {
    if (typeof str !== 'string' || str.length <= maxLen) return str;
    const words = str.split(' ');
    const lines = [];
    let currentLine = words[0];

    for (let i = 1; i < words.length; i++) {
      if ((currentLine + " " + words[i]).length < maxLen) {
        currentLine += " " + words[i];
      } else {
        lines.push(currentLine);
        currentLine = words[i];
      }
    }
    lines.push(currentLine);
  }

```

```

    }
  }
  lines.push(currentLine);
  return lines;
}

// 2. Common Tooltip Configuration (Handles array labels)
const commonTooltipOptions = {
  callbacks: {
    title: function(tooltipItems) {
      const item = tooltipItems[0];
      let label = item.chart.data.labels[item.dataIndex];
      if (Array.isArray(label)) {
        return label.join(' ');
      } else {
        return label;
      }
    }
  }
};

// --- CHART GENERATION ---

// Chart 1: Skills Radar Chart
const ctxRadar = document.getElementById('skillsRadar').getContext('2d');
const skillsLabels = ['Electrical Engineering', 'Security Systems',
'Research Methodology', 'Education Policy', 'Technical Design', 'Identity Mgmt'];
const processedSkillsLabels = skillsLabels.map(l => wrapLabel(l, 16));

new Chart(ctxRadar, {
  type: 'radar',
  data: {
    labels: processedSkillsLabels,
    datasets: [{
      label: 'Competency Level',
      data: [90, 85, 75, 70, 80, 85],
      fill: true,
      backgroundColor: 'rgba(6, 182, 212, 0.2)', // Cyan with
opacity
      borderColor: '#06b6d4',
      pointBackgroundColor: '#f97316',
      pointBorderColor: '#fff',
      pointHoverBackgroundColor: '#fff',
      pointHoverBorderColor: '#f97316'
    }]
  }
});

```

```

    },
    options: {
      maintainAspectRatio: false,
      elements: {
        line: { borderWidth: 3 }
      },
      scales: {
        r: {
          angleLines: { color: '#e5e7eb' },
          grid: { color: '#e5e7eb' },
          pointLabels: {
            font: { size: 11, family: 'Roboto' },
            color: '#4b5563'
          },
          ticks: { display: false, max: 100 }
        }
      },
      plugins: {
        legend: { display: false },
        tooltip: commonTooltipOptions
      }
    }
  });

  // Chart 2: Research Themes Doughnut
  const ctxDoughnut =
document.getElementById('themesDoughnut').getContext('2d');
  const themeLabels = ['Engineering Systems', 'Education Technology',
'Security & Integrity', 'Socio-Econ Policy', 'Rural Energy'];
  const processedThemeLabels = themeLabels.map(l => wrapLabel(l, 16));

  new Chart(ctxDoughnut, {
    type: 'doughnut',
    data: {
      labels: processedThemeLabels,
      datasets: [{
        label: 'Document Focus',
        data: [35, 25, 20, 15, 5],
        backgroundColor: [
          '#3730a3', // Indigo 800
          '#06b6d4', // Cyan 500
          '#f97316', // Orange 500
          '#9ca3af', // Gray 400
          '#fbbf24' // Amber 400
        ]
      }],
    }
  });

```

```

        borderWidth: 0,
        hoverOffset: 4
    }
  ],
  options: {
    maintainAspectRatio: false,
    cutout: '70%',
    plugins: {
      legend: {
        position: 'right',
        labels: { boxWidth: 15, padding: 15, font: { family:
'Roboto' } }
      },
      tooltip: commonTooltipOptions
    }
  }
});

// Chart 3: Keyword Frequency Bar Chart
const ctxBar = document.getElementById('keywordBar').getContext('2d');
const keywordLabels = ['Analysis & Design', 'Investigation', 'Curriculum',
'Assessment', 'Sustainability', 'Framework'];
const processedKeywordLabels = keywordLabels.map(l => wrapLabel(l, 16));

new Chart(ctxBar, {
  type: 'bar',
  data: {
    labels: processedKeywordLabels,
    datasets: [{
      label: 'Term Frequency',
      data: [12, 9, 8, 7, 5, 4],
      backgroundColor: '#3730a3',
      borderRadius: 4
    }]
  },
  options: {
    maintainAspectRatio: false,
    indexAxis: 'y', // Horizontal bar
    scales: {
      x: {
        grid: { display: false },
        ticks: { font: { family: 'Roboto' } }
      },
      y: {
        grid: { display: false },

```

```
        ticks: { font: { family: 'Roboto', weight: 'bold' } }
      },
    },
    plugins: {
      legend: { display: false },
      tooltip: commonTooltipOptions
    }
  }
});

</script>
</body>
</html>
```